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Solving "the Farm Problem" with Better Mechanical Equipment

By L. J. Fletcher

Increasing confidence is shown by farmers in mechanical equipment. Larger crops, with less labor, is raising the same question of "over-capacity", as in manufacturing.

FARM equipment engineers, and farmers themselves, are trying new mechanical methods today as never before, with a view to profit-making possibilities. The nature of crops has affected the design of implements, and now the characteristics of crops are being changed to accommodate machines. Here is the engineering viewpoint of "the farm problem." The article is an abstract of a paper contributed by the American Society of Agricultural Engineers for presentation at the summer meeting of the American Society of Mechanical Engineers, St. Paul-Minneapolis, Aug. 27-30.

WHEN engineers consider the problem to be solved by a farm machine they think generally of a material of certain characteristics to be moved from one place to another or altered physically. This article, however, will not attempt to go into the various methods employed by our modern farm machines to accomplish their tasks, but is devoted mainly to the factors sometimes overlooked when considering the engineering of agriculture. First, the variables encountered in agriculture influence to a marked degree the design of farm machinery. For example, the soil is far from a constant. The draft of a plow may be six times as much in one soil as another. The varying content of the soil may determine whether it may be worked best with one type of tool or another. The abrasive qualities of the soil affect such matters as steel treatments, materials, and enclosures provided to keep the dust out of the bearings. Loose and fast stones in many eastern farming sections furnish a real problem to the designer of tillage machinery. The ability of the soil to provide traction varies greatly and makes necessary extensive studies of lug equipment for wheels, as well as wheel sizes and widths. It was the soft yielding character of the peat and muck soils of the San Joaquin delta which first prompted Benjamin Holt to develop the caterpillar type of tractor.

Variables in topography also present problems to the farm-machine designer. Combined harvesters to work satisfactorily on the steep hillsides must be provided with leveling devices. Plows and other tillage tools are developed so as to be reversible, and special provision must be

made to insure the stability of machines on hillsides.

Variables of soil and topography may be considered constants, in comparison with changes imposed by the weather. Not only will rain cause the soil to vary in many of its characteristics but it will also materially alter the crop, as it reacts to the work of harvesting or threshing machinery. Temperature and humidity variables also have their effect on machines. Variable winds have sometimes been the cause of failures or partial failures of such machines as broadcast seeders, spraying and dusting machinery, hay-drying equipment, and threshing machinery.

In considering the profit derived from agriculture the greatest variable of all is the technical and managerial ability of the farm operator. Numerous cases are discovered where adjacent farms with similar physical conditions have paid one owner a profit while his neighbor suffered a loss, the entire difference being the ability of the operator.

Crops Vary With Locality

There is another variable in agriculture which may now present a problem, that of the plant or crop itself. Due largely to the difference in rainfall, wheat grows with a short straw in many western states, while in the middle western and eastern states it produces a rank heavy straw. On many western farms the straw is a nuisance and its only function is to lift the head of the grain high enough above the ground so that the cutter bar can get underneath. In the East the grain straw is of economic value and it is desirable to save it for feed and bedding purposes. This is a variable which the manufacturer of combined harvesters must take into consideration. The same may be said of cotton, where in western Texas it is planted in the bottom of the lister furrow so as to get all the water available, while in the Mississippi delta it is planted on top of a bed or ridge so as to be out of the water. The western Texas cotton grows but a foot or two in height and the bolls may be left on the stem and harvested all at one time in the fall, while in the cotton sections to the east, the plant grows to considerable height and the cotton must be picked as it matures.

An unusual solution of this problem has to do with the vast possibilities which the plant breeder can exercise in changing the physical characteristics of the plant so as to enable a more effective use of machinery. For example, there is the development of yolo, a type of grain sorghum grown in California. The varieties of milo and Egyptian corn available up to 1920 did not produce their grain in a fashion uniform enough for machine harvesting. By a process of hybridization and selection there was developed a grain which grew to a uniform height and held its head erect. This made possible the use of a wide variety of machines in the harvesting of the crop. In other words, in agriculture it may be possible to change the characteristics of the plant material worked on to accommodate it to the machine. This may be compared to the possibility of changing the character of steel, so that it would be plastic while cold and yet be capable of hardening without heat.

Economic considerations enter strongly into the design of farm equipment. For example, the load factor: The percentage of annual full-load use of all power units employed on farms in the United States is about 4½ per cent. Manufacturing industries enjoy a load factor of over 14 per cent. Were this efficiency possible in agriculture the present 50,000,000 primary horsepower could be reduced to less than 20,000,000. Some well-managed electric utilities are now securing load factors of over 50 to 60 per cent.

One of the big problems in agriculture, which has been largely complicated by the emphasis placed on the value of crop diversification, is the large variety of machines needed to produce efficiently several crops on one farm and the relatively small amount of annual use of each machine. For example, on the average corn-belt farm, the corn binder is used less than 50 hours a year. The grain binder which was developed to displace the tremendous amounts of hand labor involved in cutting and binding grain is often used but four or five days a year. It is easy to see why farm machines are not built with the best type of bearings or with materials which will resist unusual shocks and wear. Well-meaning authors have written articles which point out that a lathe in a machine shop will operate with but little mechanical attention for periods of 5000 to 10,000 hours, while some farm machines will be worn out in 500 hours. At that, the farm machine probably serves more years than the lathe. The raising of the load factor of its equipment is one of the real problems facing agriculture. The large farm may be the solution.

Premium Placed on Quality

Another economic consideration is that of quality in farm products. For example, hay of the highest quality may sell for $10 per ton more than hay of the next lower grade. Many people in studying the handling of hay consider it just so much material to be moved or lifted. However, a close study of this problem will show that minor changes in the methods employed and the time of their employment are vital factors in producing quality products. There may be an even greater premium placed on quality as a greater industrial utilization of farm products develops.

An economic factor which enters into the quality of the construction of the farm machine is the value of time; or, in other words, the necessity for performing certain operations without delays. For example, the spraying of fruit trees for the control of certain plant diseases or animal pests will frequently be of no value if delayed for as much as one or two days. Hence, the farmer will be more justified in paying for high-quality construction in a spraying machine than in some other piece of equipment where the timeliness of the operation is of much less importance.

In tillage machinery the one-way disk has rapidly covered the wheat belt and is finding new markets in the East. A new type of rotary tiller or soil pulverizer is being perfected and put on the market. The rotary hoe has been revived to meet the cultivating needs of the producer of soy

Developing Implements for New Agriculture

ONE of the bright spots in the agricultural situation is the rapid tendency to develop "non-stomach" uses for agricultural products; i. e., such materials as wallboard from sugar cane, bagasse, or corn stalks; rayon from cellulose derived from a wide variety of plant materials; oils from soy beans, used in the manufacture of paints and varnishes. In the experimental laboratory many synthetic products have been made from corn cobs and corn stalks which tend to point the way toward future economic developments.

Mechanical farm equipment itself has undergone marked changes in recent years. The tractor has become a dependable economical source of energy, and farm machines, well adapted to tractor operation, are increasing in number each year. The tools for a different agriculture are being developed today.—L. J. FLETCHER.

beans and corn. There is a general abandoning of the idea of the mulch to conserve moisture and more attention is now given to wood control, especially in preparing better seed beds and weed eradication immediately after planting while the crop is small.

The control of the corn borer has been due largely to the universal employment of new types of farm machines, such as wide-bottom plows, stubble pulverizers, low-cutting corn binders, and field burners. Much attention is being devoted to artificial drying of hay and grain. There are great possibilities in this field for improving the quality of hay, the dependability of the crop, and extending the hay-producing areas.

The windrowing attachment and the windrow and shock pick-up attachments are recent combined-harvester developments which will allow the use of this great labor-saving machine in practically all grain-growing sections. The mechanical cotton picker is now being used in the South where with almost uncanny accuracy it passes through the cotton rows, removing the ripe cotton from the boll and leaving the green or unopened bolls, the flowers, and the leaves.

A successful sugar-cane harvester has been the object of the expenditure of much time and money. N. C. Storey, of the Southern Sugar Co., Clewiston, Fla., has developed a machine which promises a mechanical solution to this problem of cutting, stripping, and topping cane.

There is also a decided tendency toward the combining of several farm operations in one. This is mainly due to the change from the horse to the tractor, where the tractor has ample power to pull several tillage tools or combine them with planting operations. Plows and harrows are being attached to harvesting machines so as to kill the weeds immediately after the harvest and thus conserve moisture for the next crop. General-purpose tractors designed to plant and cultivate two, three, and four rows at a time, are now on the market. Potato diggers are built to dig two rows at a time, their mechanism being operated through a power take-off from the tractor engine. The South is beginning to realize her many natural advantages of soil, moisture and growing season and is adopting machine methods of production. Near Leesburg, Ga., a 500-acre field of peanuts has been handled entirely up to harvest by two men and a tractor; the work including the initial tillage, weeding, planting, and cultivating five rows at a time, and later the same equipment will be used to dig the peanuts.

It is evident that until the last few years the motive behind the development of farm machinery was to save labor. In fact, modern farm machinery is usually spoken of as "labor-saving" farm machinery. Tillage tools for use with animals were developed first, thus relieving the early farmer of the task requiring the most in physical exertion. Later, harvesting machinery was developed and, after that, planting machinery. The present trend in farm machinery, however, is somewhat away from the labor-saving factor and is beginning to consider profit-making possibilities. In other words, present machines must answer the question: Does it do the work cheaper for the same quality, or does it produce a better quality at the same cost? As an example of this new method of approach we have potato pickers which are attached behind a digger. Men riding on these pickers remove stones, clods, and other foreign material, while a man riding on the rear of the machine aids in the sacking operation. Here, as in other types of new machines, the man is used in places where judgment is required, while the machine relieves him of transporting himself or the product and removes from him, as far as possible, all unnecessary effort.

Farmers today are trying new methods as never before in the history of agriculture. This is largely due to the combined result of the educational work conducted so effectively by state and federal agricultural extension workers and well-directed farm press. The continuous airing of the "farm problem" by politicians is tending also to make the farming industry realize that something should be done and it is quite evident that it will be largely up to the farmer to do it. The rapid increase in the use of the combined harvester east of the Rockies is an example of the present tendency to adopt new methods quickly. Thirty years ago thousands of eastern wheat farmers knew of the successful use of the combine on the Pacific coast. The belief that it would not handle the grain produced under more humid conditions, together with the reluctance to change methods prevented for many years the introduction of this most profitable machine.

Trainload of combined harvesters starting from a factory in California for Texas wheatfields. Each combine cuts the cost of harvesting grain from 15 to 25 cents a bushel by eliminating three harvest "hands."

Because of this increased confidence in new methods it is most important that designers of farm machines acquaint themselves with all of the requirements that the machine must meet. There is need for more basic data on which to base the design of machinery. This is particularly true of tillage machinery. State and federal agricultural experimental stations now have under way many projects, which when completed will furnish valuable data and information to the designer of farm machines.

Studies made recently tend to show that in spite of a decreasing farm population there is a considerable increase in the amount of crops produced; thus it would seem that by producing a surplus and thus lowering prices, agriculture is suffering from its own efficiency. The peculiar paradox existing today is that as the nation becomes more prosperous less food is actually consumed.

How Motions of Ore Bridges Are Controlled

By W. C. Raube

IN HANDLING raw materials which go into the production of pig iron, the ore bridge plays an important part. Ore bridges vary in size and capacity, depending upon local conditions and the capacity of the plant they serve.

The principal motions on a modern bridge are bucket hoist, trolley motion along bridge, bridge motion along track, and rail clamp application and release. A few bridges also are equipped with auxiliary drives such as the turntable for bucket turning, boom hoist, apron hoist, belt conveyors, and feeder belts. These latter drives are added to take care of special features in conjunction with a particular installation, and it is not the intention of this article to cover them in detail.

The illustrations shown on the accompanying pages are of an up-to-date installation of motors, brakes and control on an ore bridge at the Perry Iron Works, Erie, Pa. The bridge was built by the Industrial Brown Hoist Corp., Cleveland, and the motors and control equipment were supplied by the General Electric Co., Schenectady, N. Y.

The author, W. C. Raube, is associated with the industrial engineering department, General Electric Co., Schenectady, N. Y.

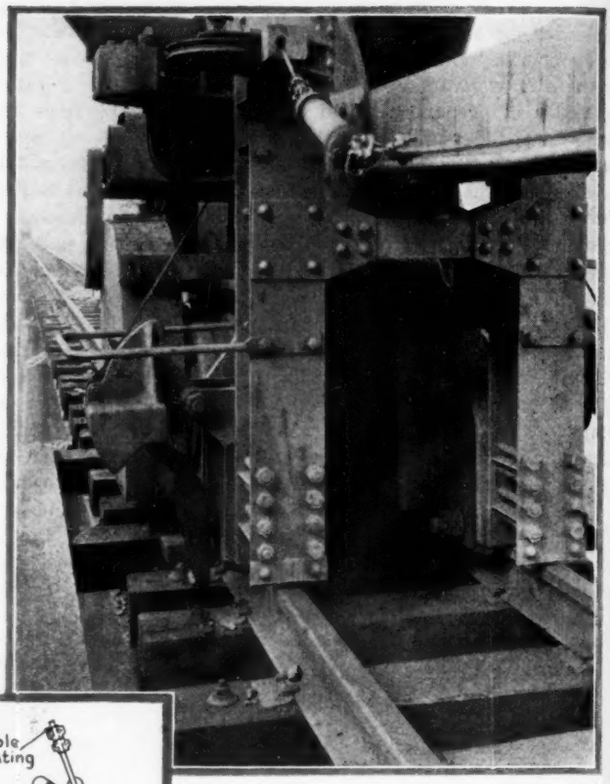
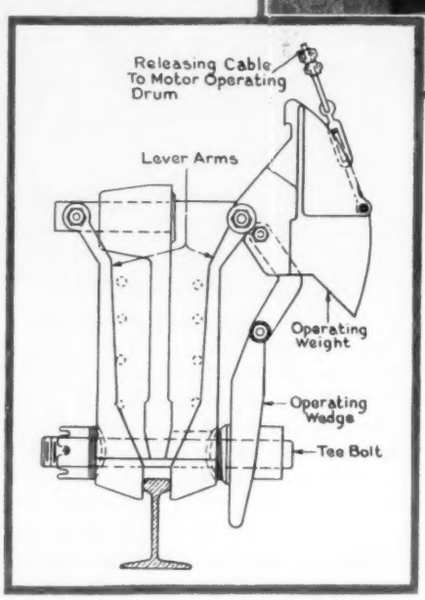


Fig. 1 (Right)—A view of one of the clamps for securing the bridge to the runway rails. Fig. 2 (Below)—A sketch illustrating the operation of the rail clamping mechanism



An ore bridge may be operated by either alternating or direct-current power, the final selection of power supply depending upon a great many conditions which are not within the scope of the present discussion. This description will be confined to the so-called principal motions of a direct-current, man-trolley type ore bridge such as is shown in Fig. 3.

As is often the case on direct-current ore bridges, the hoist motion is accomplished by two duplicate series-wound motors, one geared

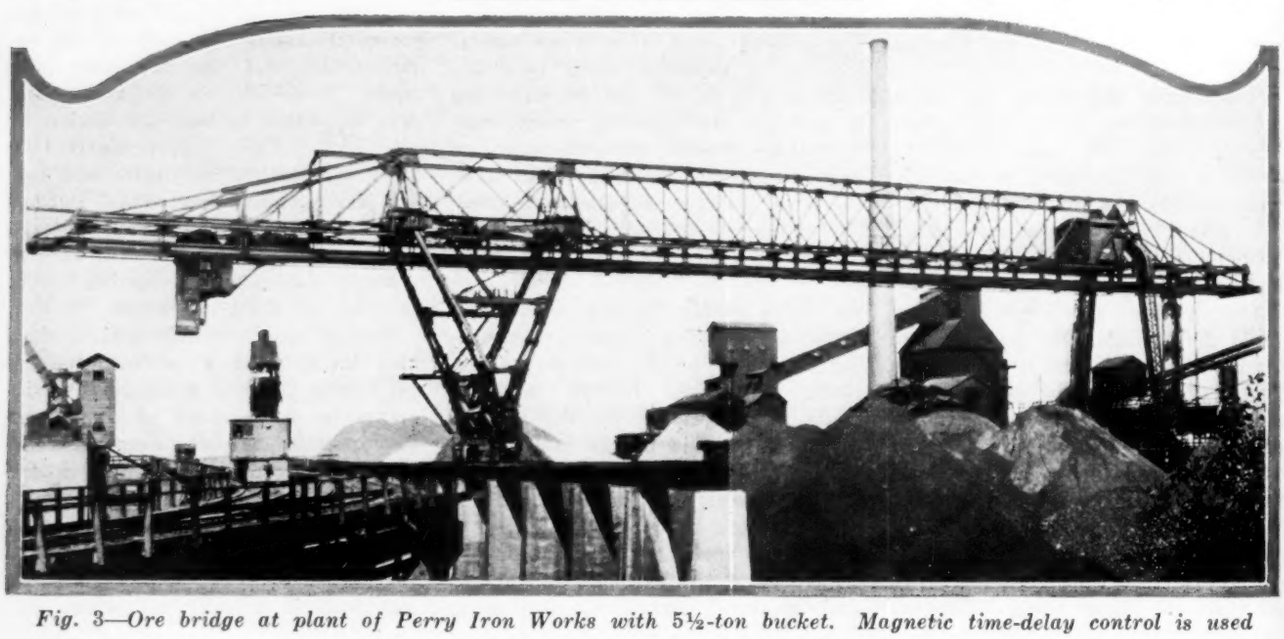


Fig. 3—Ore bridge at plant of Perry Iron Works with 5½-ton bucket. Magnetic time-delay control is used

to the closing line and the other geared to the holding line. Each hoist motor is equipped with a solenoid brake.

Individual control is provided for each motor, and each is controlled from a separate master switch so that the operator has absolute control over each of the hoist motors, and, by properly operating the master switches, can correlate the holding and closing line motions as required. Both controls are arranged to give power in the hoisting direction, with low torque on the first points useful in taking up slack cable and starting the bucket-closing operation. In the lowering direction dynamic braking is provided on all points

Fig. 4—Arrangement of master switches in the operator's cab

as well as at the "off" position of the master switches.

In addition to the regular dynamic braking, an emergency dynamic braking lowering is automatically established in case of failure of power. This emergency braking assists the solenoid brakes in bringing the bucket to rest. A power kick-off also is provided on the last lowering point on each master switch. This is useful in quickly accelerating revolving parts for bucket opening and lowering operations. Automatic acceleration hoisting and automatic deceleration lowering is provided by means of magnetic time-delay relays. It should be noted that automatic deceleration lowering is just as vital as automatic acceleration hoisting.

The series characteristics of the hoist motors cause them to share the load equally in hoisting a loaded bucket. To hoist an empty bucket with jaws open, the holding-line master switch should be advanced to the last hoisting point, whereas the closing line master switch should be left on one of the first points for light-torque, slow-speed operation to prevent bucket jaws from closing.

The normal lowering operation is to lower an empty bucket with jaws open so that the bucket is ready to bite up a load of material as soon as it reaches the stock pile. This duty requires the closing-line motor to operate light, to pay out closing line to keep up with the holding-line motor, which takes all the weight and lowers the bucket by dynamic braking. To regulate the speed of the closing-line motor for such an operation, a shunt of relatively high resistance is automatically maintained across the armature of the closing-line motor.

How Bucket Is Lowered

For lowering a loaded bucket, the master switches are both notched to the last lowering point the same as for lowering an empty bucket, and a relay provided on the holding line control causes the shunt to be removed from across the closing-line motor and establishes a dynamic-braking connection equivalent to that provided on the next to the last point on the closing-line master switch. The resistor divisions on closing-line control are so adjusted that under such conditions the closing-line motor will exert a little higher dynamic braking torque than the holding-line motor, thereby insuring that bucket jaws will remain closed during the lowering operation.

A recently adopted feature of the hoist control designed by the General Electric Co. is the use of a relay which prevents the solenoid brake from setting for a short time after power has been disconnected in the lowering direction. No time delay is introduced in the setting of brakes when cutting off power in the hoisting direction. The purpose of this refinement is to cause the greatest part of the deceleration lowering to take place electrically by dynamic braking and thereby increase the life of brake shoe linings.

The trolley on a man-trolley type bridge usually is operated by two duplicate series-wound motors operating in parallel and equipped with shunt-wound solenoid brakes. The brakes may be connected either as service brakes, setting each time that the control is brought to the "off" position, or as emergency brakes remaining released at all times except in case of failure of power or in case an emergency switch is tripped by the operator. The control on trolley motion may be either a standard reversing plugging control or a reversing dynamic-braking control. Present-day practice, which is leaning toward simplicity, is favoring the reversing plugging equipment. With two motors on a trolley, the two controls are built into a single panel and all are controlled from a single master switch. Automatic acceleration and plugging relays are provided by means of the same type relays as discussed on hoist motion.

One of the important features of the trolley control outlined is that the two relays which provide plugging protection are mechanical duplicates of the relays used for acceleration but operate on the counter elec-

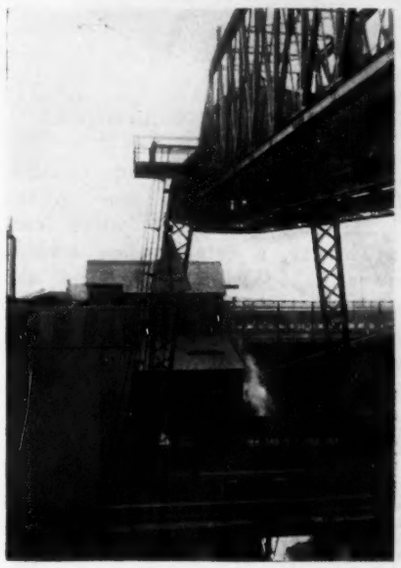


Fig. 5—A mechanical indicator shows the amount of bridge skew

tromotive force of one of the motors. This insures that the motors are decelerated to practically zero speed when control is "plugged" and at the same time there is no time delay on the low-torque point when accelerating from rest, unless the master switch is held at the low-torque position. Such operation provides maximum production with complete protection to the motor.

The bridge motion, although not used as much as the trolley or hoist motions, is often more interesting in its operation. On a skewing type bridge such as shown in Fig. 3 propelling equipment is provided on both legs of the bridge. One leg is called the pier leg and the other the shear leg. The usual practice is to provide two motors, each equipped with a shunt brake on each leg, and control each set of two motors in parallel from one master switch, thereby giving two master switches in the bridge operator's cab.

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Graphitization of White Cast Iron by Annealing below Critical Temperature

By R. L. Dowdel and J. T. Gow

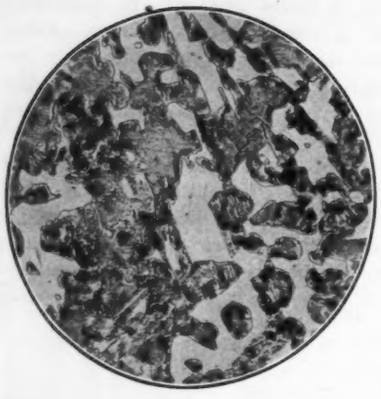

Fig. 1—Original white iron as cast. Magnification 100 diameters

A LARGE amount of research work has been done on the malleablizing of white cast iron having a total carbon content between 2.30 and 2.70 per cent and with silicon between 0.60 and 0.80 per cent. In the following experiments a white cast iron made in a cupola furnace using cast-iron scrap was used. The iron had an analysis as follows:

	Per cent
Total carbon	3.34
Graphitic carbon	none
Silicon	0.93
Manganese	0.25
Phosphorus	0.30
Sulphur	0.10

As this is one of the cheapest irons that can be made, it was thought that experimental work on this material might lead to further investigation by others and might even result in a fairly tough product after undergoing a suitable heat treament.

Annealing experiments conducted on quenched high carbon, low silicon tool steel[1] and similar tests on gray iron, both of which showed graphitization, suggested that graphitization of iron of the type used in this investigation might be effected by quenching in oil from 800 to 900 degrees Cent. and then annealing below the critical.[2]

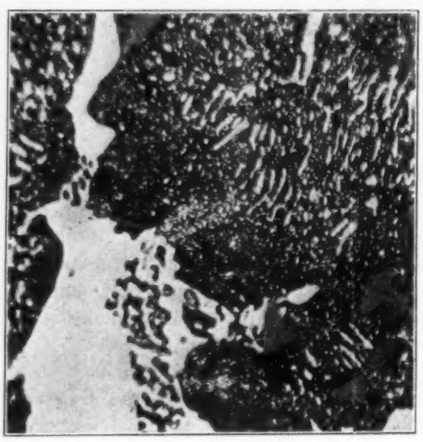

Fig. 3—White cast iron heated to 830 degrees Cent., held 1 hour and oil quenched. Magnification 10000 diameters

The microstructure of the white iron used is shown in Fig. 1, at a magnification of 100 diameters. Fig. 4 shows the same structure at a magnification of 1000 diameters. The microconstituents shown are lamellar pearlite (formerly austenite dendrites) and cementite. The average Rockwell "C" hardness of this structure was 42.3. Thermal analysis using inverse rate heating and cooling curves showed the lower critical temperature on heating to be at 783 degrees Cent. and on cooling to be at 752 degrees Cent.

Fig. 4—The same iron as in Fig. 1 Magnification in 1000 diameters

The samples heat treated consisted of cylinders about 1-inch in length cut from sand-cast arbitration bars. All heating was done in a closed electric muffle furnace. An "as cast" specimen, the original structure of which is shown in Figs. 1 and 4, was annealed at 640 degrees Cent. for 7 days. Fig. 2 shows that after this treatment the structure in the interior, which was originally a lamellar pearlite with excess cementite, showed a tendency to form granular pearlite in the dendritic patches while the cementite network remained unchanged. Fig. 5 shows the microstructure at the interior of the specimen after annealing the original white iron at 730 degrees Cent. for 7 days and oil quenching. After this anneal and quench, the Rockwell "C" hardness was 28.4.

The authors are associated with the University of Minnesota; R. L. Dowdell is assistant professor of metallography, and J. T. Gow a graduate in metallurgical engineering.

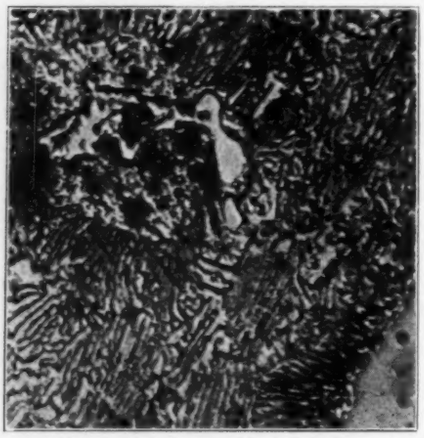

Fig. 2—White iron tempered at 640 degrees Cent. for 7 days. Magnification 1000 diameters

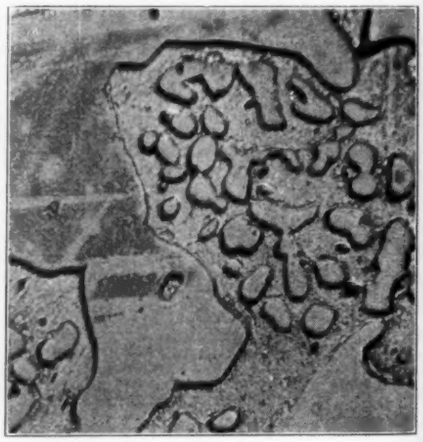

Fig. 5—White iron tempered at 730 degrees Cent. for 7 days. Magnification 1000 diameters

[1]Transactions of the American Society for Steel Treating, Vol. XI, p. 583 (1927).

[2]Preprint No. 462, American Foundrymen's association.

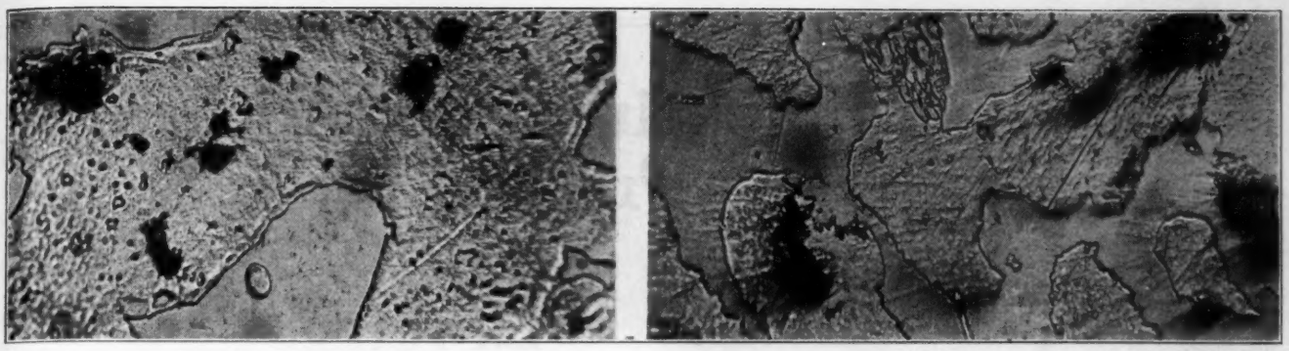

Fig. 6 (Left)—White cast iron heated to 830 degrees Cent., held 1 hour, oil quenched, and tempered at 640 degrees Cent. 7 days. Fig. 7 (Right)—Same iron heated to 830 degrees Cent., held 2 hours, oil quenched and tempered at 700 degrees Cent. 40 hours. Magnification 1000 diameters

The marked softening as compared to the original hardness (42.3) was due largely to the spheroidizing of the cementite in the pearlitic areas.

When this cast iron was heated to 830 degrees Cent., held at that temperature one hour, and oil quenched, it had a Rockwell "C" hardness of about 50 and a microstructure consisting of troostite, small spheroidized cementite, and free cementite, as shown in Fig. 3. After heating to 830 degrees Cent. this free cementite (eutectic cementite) remained in about the same relative amount as was obtained in the "as cast" condition. Even after holding the specimen at 830 degrees Cent. for about 4 hours and quenching, it was found that the distribution of free cementite, as shown in Fig. 8, was about the same as it was for one hour.

In all of the 1¼-inch sections quenched in oil from temperatures in the vicinity of 830 degrees Cent. the dendritic patches consisted mainly of troostite, throughout the sections with occasional areas containing acicular martensite in an austenitic groundmass. After heating this iron to 870 degrees Cent. the free cementite was still present in nearly the same amounts.

When test specimens of the cast iron were oil quenched from temperatures of 830 to 870 degrees Cent. after several hours, and later annealed at a temperature of 640 degrees Cent. for several days, it was found that the lamellar pearlitic patches in the interior of the specimens formed a spheroidal cementite with only a few spots of graphite. In tests made with the atmosphere of the furnace was as neutral as possible, it was found that the outer zone of the pieces had its pearlitic patches almost completely graphitized to a depth of about ⅛-inch. The interior zone of the pieces did not appear to graphitize readily, but the outer zone usually appeared as in Fig. 6.

Fig. 8—White cast iron heated to 830 degrees Cent., held 4 hours and oil quenched. Magnification 1000 diameters

If the annealing was performed at about 640 degrees Cent. for one week or at 700 degrees Cent. for about 40 hours, areas formerly pearlitic became changed to ferrite and graphite with only a few small islands of cementite. The eutectic cementite (massive), however, always remained in about its original amount and distribution. Figs. 6 and 7 show that about the same microstructure results from these last treatments.

A specimen of the white cast iron was quenched from 830 degrees Cent. and reheated to 640 degrees Cent. for about 16 days. It was found that a considerable amount of the massive cementite had graphitized. Figs. 9, 10 and 11 show that the massive cementite is decomposing very slowly into ferrite and graphite. Fig. 11 shows that a reheating temperature of 730 degrees Cent. for 8 days will produce a decomposition

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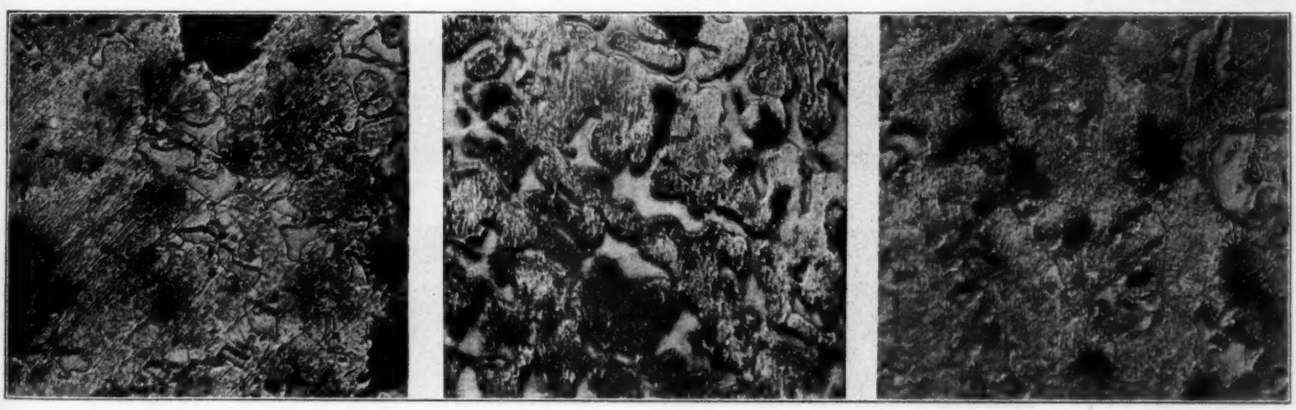
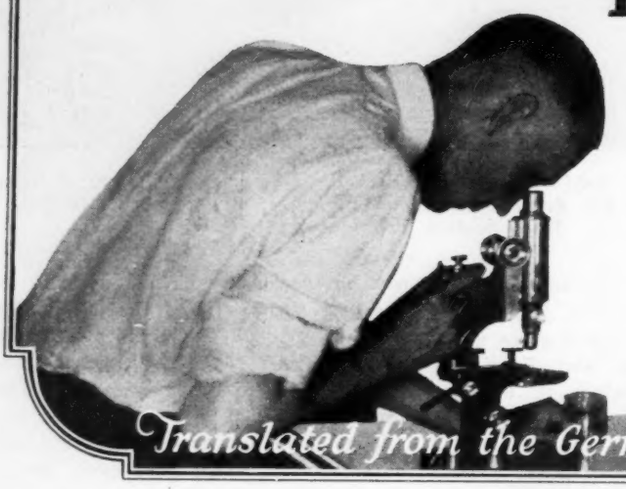


Figs. 9, 10 and 11—Specimens of white cast iron heated to 830 degrees Cent. and held 1 hour. Fig. 9 (Left) was then tempered at 640 degrees Cent. 16.6 days, Fig. 10 (Center) at 730 degrees Cent. 5 days, and Fig. 11 (Right) at 730 degrees Cent. 8 days. All micrographs are of the interior of the bars and are taken at 100 diameters

Metallography Simplified for Practical Use In Shop



By

E. Preuss
G. Berndt
M. v. Schwarz

Translated from the German by Richard Rimbach

Chap. IV—Shaping of Steel (Concluded)

IN FIG. 45, the cross-section of an aged boiler plate etched with Fry's reagent, is shown the remarkable course of the force effect lines inclined about 45 degrees to the surface following the path of the stresses occurring in bending. The usual macrosopic etching does not show these lines, as can be seen from Fig. 46, which represents the cross-section of the same boiler plate. The Fry reagent[10] is very valuable, for example, to determine the depth to which punching affects steel, as in Fig. 47. This is a "recrystallized" section obtained by heating to 730 degrees Cent. for 6 hours, a treatment which in soft steel permits the recognizing of a punch impression. The crystals in the "critically deformed" zone become very coarse, as shown by the light lens-shaped portion. The force effect figures were not removed by the heating and show to what extent the material is changed by the punch impression. As the force effect lines already show slight amounts of deformation, they can also serve to show if and where the piece was stamped, even though the punch impression has been filed or ground off. Microscopic investigation at very high magnification showed the crystals in the force effect lines were roughened and therefore attacked more by the etching, so that the lines under suitable illumination appear dark. A crystal destruction takes place, which can be determined microscopically.

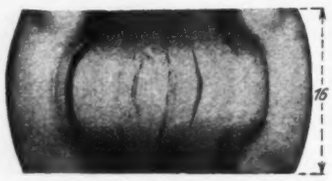


Fig. 44.—Longitudinal section of a steel cylinder upset cold, etched macroscopically

Fig. 44 represents an axial longitudinal section through a specimen which originally was 32 millimeters long, around of 12 millimeters diameter and which was pressed cold to half its height. It is possible to follow exactly the course of the change in shape of the various fibers due to the excessive segregation of the material. It is remarkable that the fibers on the barrel-shaped outer surface of the body are curved only to one side, while at the transition point between the lighter edge zone and the darker core zone near the pressure surface, for example, a turning point is shown. This point is explained by the large friction on the pressure surfaces which attempts to prevent a material displacement. In addition, the four dark bands are shown running from the four end points of the test body in the direction of the diagonals toward the inside are remarkable. These are the places of greatest stress and deformation, which according to what was said previously appear dark due to the structural disturbances which are present there. It is in these diagonals or the lines of greatest stress, therefore, that the fracture later takes place, providing the material is not plas-

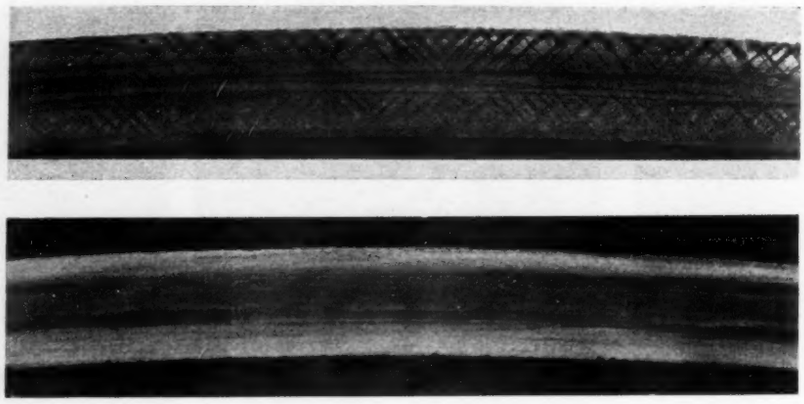


Fig. 45 (Above)—Cross-section of a steel sheet bent cold and aged, showing force effect figures, etched according to Fry. Fig. 46 (Below)—The same cross-section as in Fig. 45, but etched macroscopically in the regular way. (A. Fry)

[10]See A. Fry: Kruppsche Monathefte, July, 1924.

tic enough to withstand an extensive compression without tearing.

Fig. 48 is the cross-section through a round rod of soft steel, which shows a singular figure 8 segregation. This may have originated in the following manner: The round investigated, which was about 50 millimeters in diameter, was forged down from a heavier round. This forging work can still be recognized because the outline of the rod in Fig. 48 is not wholly circular, but is made up of many short straight lines, caused by the effects of the hammer blows when elongating. In forging down from the larger to the smaller diameter, the blacksmith failed to turn the piece somewhat after each blow, rather he permitted it to remain lying on the anvil during a number of blows, so that due to the effect of the repeated blows on the same side an ellipitic cross-section according to line *c* in Fig. 49 was obtained. Then he suddenly turned the rod 90 degrees, so that the elliptic cross section now stood

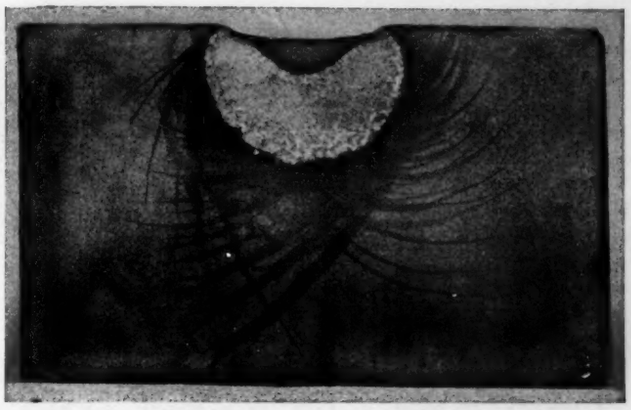


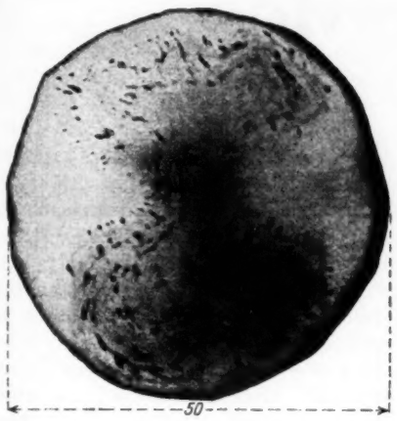
Fig. 47 — Section of a steel with a die impression, recrystallized and then etched according to Fry. A very deep penetration of the force effect figures is shown. (A. Fry)

from which the tube was made, stood perpendicular to the pressing direction. By this method of manufacture, the otherwise segregation-free tube was less resistant and burst open in the direction of the radial fibers.

Fuel Briquets Increase

Fuel briquets were produced in the United States in 1927 to the total full supply of anthracite coal. That production and consumption of briquets is growing steadily is indicated by the production of December, 1927, when the outturn was 148,830 tons, exceeding by 8175 tons the largest month in 1926.

In 20 years briquets have increased fifteenfold. Periods of shortage of anthracite, due to strikes, have accelerated what otherwise might have been a slower growth.



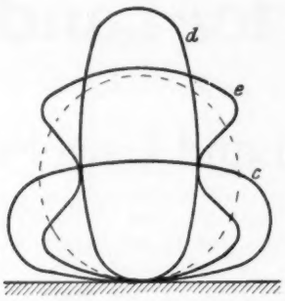


Fig. 48 (Left)—Steel round with a figure 8 segregation in the cross-section, etched macroscopically. Fig. 49 (Above)—Schematic explanation of Fig. 48

edged as shown by line *d*. In this position he again gave the piece a number of blows, which assumed the figure 8 section represented by line *e*. Later the figure 8 section was again forged out to a round. As was stated with Figs. 12 and 13, the changes in shape in such cases take place essentially at the surface of the material, the core retains the figure 8 segregation zone as a permanent proof of the changes in shape to which the piece was subjected.

A singular fiber direction is also shown by the cross-section of a broken, seamless steel tube, drawn according to the Ehrhardt process, which is shown by the cross-section, Fig. 50, etched by the Oberhoffer method. The phosphorous lines are in part radial, in part peripheral, the rest, as usually is the case, run parallel to the large slag inclusions. This strange arrangement may have originated in that the fibers of the billet of 970,468 tons, which was 24,864 tons less than the total for 1926. Production had been stimulated in the former year by the anthracite strike and a larger decrease in 1927 had been forecast in the presence of a

Will Show Use of X-Ray in Industrial Work

A feature of the Western States Metal and Machinery exposition in Shrine auditorium, Los Angeles, Jan. 14-18, will be a demonstration of the use of the X-ray in detecting flaws in metals. This exposition is the first of its type that has been held on the west coast and widespread interest is already being indicated in it. Many types of modern appliances essential in the mining, oil field and manufacturing industries will be displayed and demonstrated at the exposition. A Western Metal congress will be held in conjunction with the exhibition. Both the exhibition and congress are being arranged under the auspices of the American Society for Steel Treating.

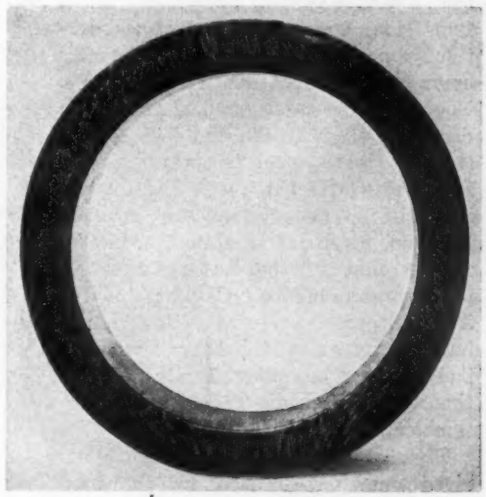
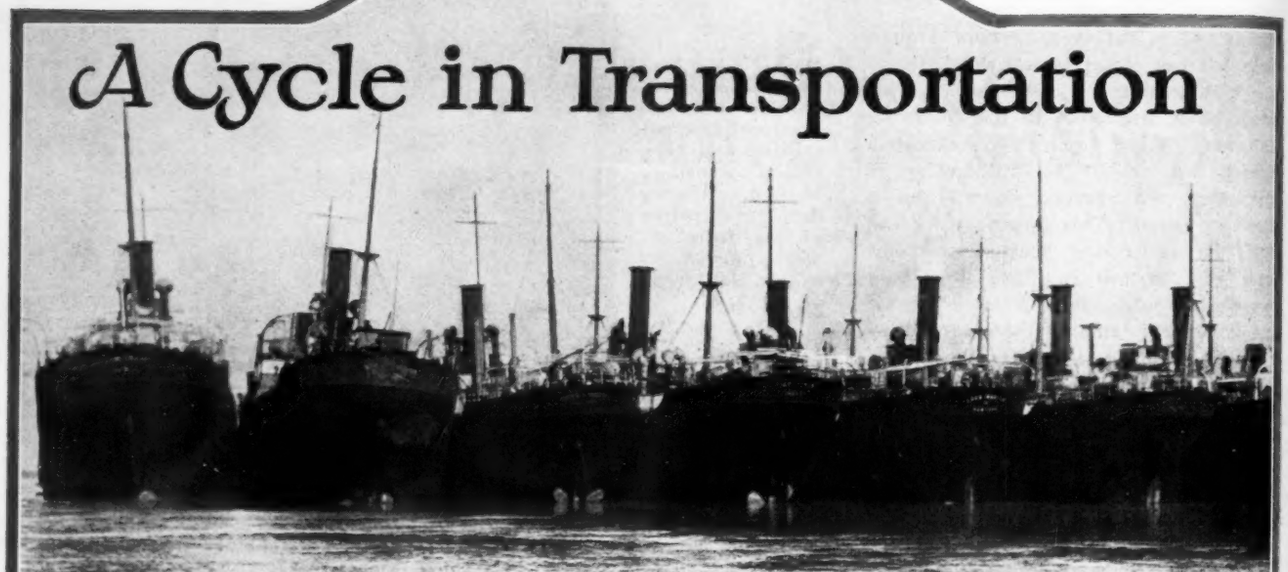


Fig. 50—Cross-section of a seamless steel tube with singular fiber arrangement, etched according to Oberhoffer. (E. H. Schulz and R. Fiedler)

A Cycle in Transportation



How Ford Scrapped Surplus War-built Ships and Reclaimed Material for Land Service

Part III—Unique Land Uses Found for Ship Parts

THE great ship movement of 1926 started with the removal of the 29 lakers from Gulf of Mexico waters. Early in February the LAKE ORMOC and LAKE GORIN were pulled from the New Orleans fleet and taken to the Jahncke company for complete overhauling. The same month the LAKE GOVAN and LAKE FARLIN, the only two vessels at Mobile, were moved and the LAKE FOSSIL and LAKE LASANG started north from Orange.

Two months later the movement was in full swing. By the middle of April all the remaining ships had left New Orleans. Late that month the LAKE BENBOW had been taken from the Orange fleet for reconditioning as the third steamer. In May came the main exodus from Orange. The LAKE BERDAN and LAKE FRIO departed on May 23, the last of the ships to leave southern ports.

A week later the LAKE FRENCHTON and the LAKE ELIZABETH reached Fordson, after a trip almost as eventful as that of the LAKE FONDULAC six months before. Caught in the ice pack of the North Atlantic and buffeted by gales, the barges were in bad shape when they finally reached the Great Lakes. Their prows resembled corrugated washboards.

The first ships from the South arrived empty. As soon as the towing operation was well under way, however, nearly all barges carried a cargo of submarine scrap in their holds. Some of the boats from the Gulf and most of those from the east coast were towed to the shipyards for loading before embarking for Fordson.

THIRD installment of the Ford Motor Co.'s own narrative of its scrapping of 199 surplus warbuilt ships from the shipping board. Previous instalments appeared in issues of Aug. 9 and 16.

Extensive repairs were needed on the barges before they could be towed to sea. One boiler was conditioned on each ship to operate the auxiliary machinery. A mooring winch on the forward well deck and one on the after well deck were fitted out to be used in maneuvering in the canals. The mooring winch on the after end of that barge which was to be towed next to the tug was also fitted out for shortening the towline to the second barge.

Lifeboats were repaired and equipped to government specifications.. Life preservers were provided for each member of the crew. Sufficient lights were supplied to comply with all regulations. Each barge was furnished with a specified amount of equipment and food supplies.

All steering apparatus was reconditioned. Bilge pumps and manifolds were repaired. Cabins were fixed up to accommodate nine men. The captain's quarters and pilot house were put in shape. Steam lines to winches, steering machinery, bilge pumps and radiators in those cabins which were to be occupied, were reconditioned.

Coal was supplied to each barge, the amount depending upon the length of the trip. The three steamers —LAKE ORMOC, LAKE GORIN and the LAKE BENBOW—carried a quantity of coal as ballast.

The barge crews consisted of a captain, chief engineer, steward, three firemen and three seamen. The barge captain was under the orders of the tug captain, but had full charge of his own crew. The tugs carried a crew of 21 men, including officers; and the steamers a crew of 34 men.

The steamers were able to make the entire trip from the East coast to Montreal and back without recoaling; but tugs were forced to stop at least once and occasionally twice for

fuel, usually either at Halifax or Pictou. The first St. Lawrence river pilot was picked up at Father Point, Que. He guided the ships as far as Quebec where another pilot was picked up for Montreal. The pilot boat met the ships in midstream, and pilots were exchanged without the vessels stopping.

A representative of the Ford Motor Co. rode out on the pilot boat and boarded each ship as it neared the city. He obtained a list of needed stores and the ship's papers, and then left to proceed by rail to Montreal, where he arrived before the tows.

Through the courtesy of the Canadian government the Ford representatives were able to clear the ships without the formality of having the captains come ashore, thus saving an appreciable amount of time. In addition the company representatives had the necessary stores waiting at Lock No. 1 on the Lachine canal, and they were loaded on to the barges while they proceeded through the lock. Save in exceptional cases, it was not necessary for the barges to dock at Montreal.

Canadian government regulations were such that Ford Motor Co. tugs could not tow the barges through the Canadian canals. A tug or steamer having a tow could proceed through Canadian waters just so long as it was not necessary to drop its towline. Whenever that became necessary and the line was picked up again, a fee of $400 was charged. This meant that the Ford boats could take the barges as far as Montreal but could not proceed with them through the canals, for the towlines would have to be dropped at each canal lock. Steamers and tugs, therefore, proceeded only as far as Montreal, turning back there. Other tugs were waiting for the barges on Lake Erie and Lake Ontario. Arrangements were made with Canadian companies for towing through the intervening waters.

Deck houses were easily converted into tool cribs

An unexpected difficulty was encountered with the loaded lakers. The lockgates on the St. Lawrence river canals close "V" shaped, pointing upstream, to withstand the pressure of the downstream current.

Ships Too Large for Locks

The lake-type boats, which were built on the Great Lakes, were able to proceed down the St. Lawrence river through the canals because they fitted into the locks in such a way that the gates could be swung closed without trouble. With the same ships headed upstream and loaded, however, the gates could not be closed; they caught against the bulging fantails of the vessels.

To solve the problem it was decided to cut off a part of the fantails. A contract was entered into with the Welding Engineers, Ltd., of Montreal, for the work, a charge of $40 a ship for day work and $50 a ship for night and Sunday work being made. The cutters boarded each barge as it reached Lock No. 1 in the Lachine canal and stayed with the vessel until the job was finished. The steel was cut off in sections weighing about a ton each, two on the starboard side and two on the port.

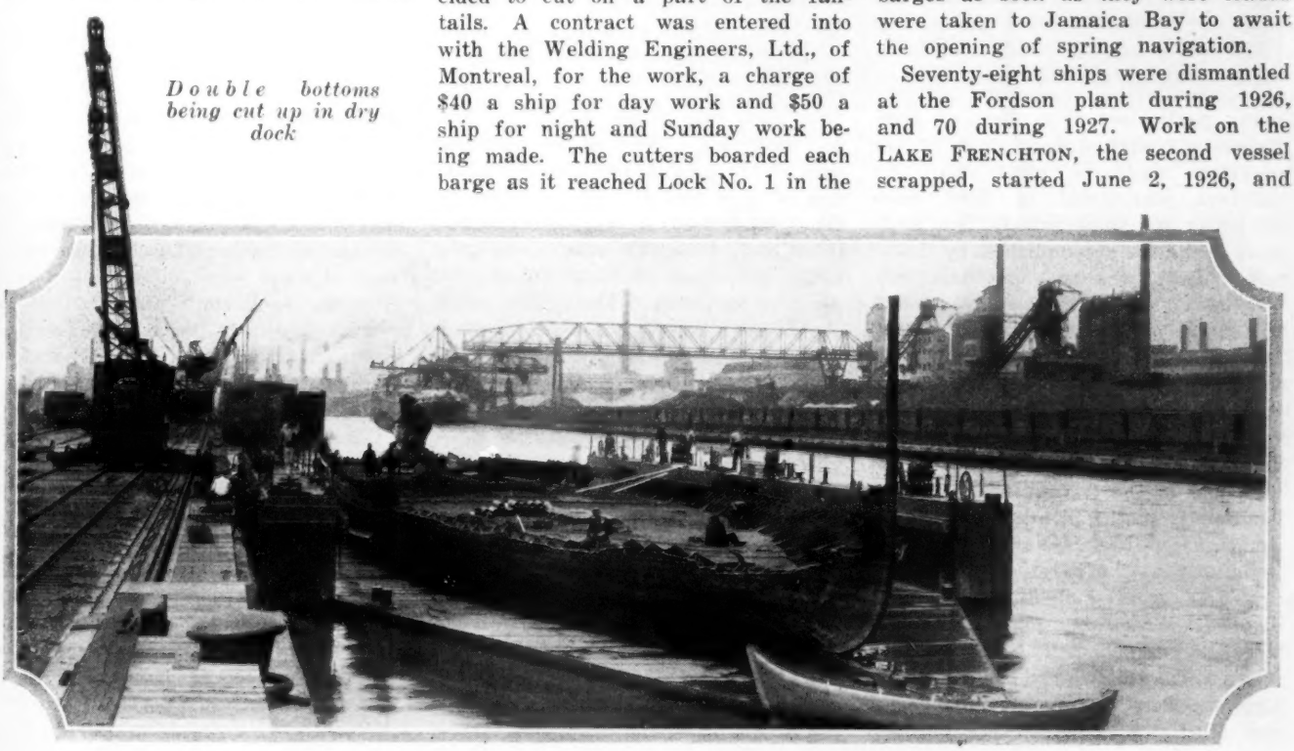
Cutting was done with oxyacetylene torches. As each section was nearly free a hole would be burned large enough to fasten a shackle to it. A cable was then run through a winch and reeved to a block in the after mast. As the piece was cut away it was allowed to fall into the water. This quenched the heat and fire in an instant, after which the piece was hoisted back on deck.

The fantails were cut to conform to the arc made by the gates as they swung closed. The holes were opened in the poop deck, commonly known as the crews' forecastle. Crews on the barges lived amidships. There was no danger from the cut as any water shipped through the opening would run out on to the main deck and thence through the scuppers. Possible damage was still further lessened by the fact that the barges never had a following sea. During bad weather they would turn about to take the water over their bows.

At the end of the towing operation the reconditioned steamer, LAKE ORMOC, was backed through the canals, thus doing away with the necessity of cutting its fantail. This method would have been impractical for the barges, however, as it took two days to pull the LAKE ORMOC through three locks on the Soulanges canal alone.

During the winter of 1926-27 the barges as soon as they were loaded were taken to Jamaica Bay to await the opening of spring navigation.

Seventy-eight ships were dismantled at the Fordson plant during 1926, and 70 during 1927. Work on the LAKE FRENCHTON, the second vessel scrapped, started June 2, 1926, and



Double bottoms being cut up in dry dock

ended June 29. The LAKE ELIZABETH, third vessel, was finished July 1 and the LAKE FLYNUS, July 3. Thereafter a ship was completely dismantled every two or three days throughout the summer. The last ship dismantled during the year was the LAKE BLANCHESTER which was lifted from the floating drydock Christmas Eve.

The dismantling operation was constantly changing. New methods were introduced, improved ways for handling the work were devised, new means for utilizing ship material were discovered. The dismantling operation of 1927 differed radically in many particulars from that of 1926. Experience showed how steps in the operation could be eliminated, how different jobs could be done more efficiently and more quickly, how more work could be accomplished by fewer men. Up to the time the last ship was lashed to the dock in November, 1927, changes were still being made. In the main, however, the dismantling followed a definite routine.

To insure a constant supply, ships were brought from the East in such numbers that a reserve fleet was established in the Detroit river a short distance from the mouth of the River Rouge.

As soon as the barges were moored the fires were pulled and boilers drained. Water bottoms and bilges were all pumped dry. Seacocks were filled with tallow and blanked off. Engines were thoroughly gone over and oiled, and boilers were cleaned. Unslaked lime was put in boiler shells and the boilers sealed up airtight. The lime collected all moisture and prevented rusting and deterioration of steel shells and tubes.

From the reserve fleet a ship to be dismantled was towed about four miles to the River Rouge turning basin, and tied up at the north wall of the slip. Here all consumable stores, foodstuffs, dishes, hardware, furniture, and like objects were first removed.

Wood was one of the important items salvaged. Rails and deck lumber were of excellent fir. Oak ceiling and pannelling were recovered from each ship to the amount of 3000 and 4000 feet. Much of the panelling was of the tongue and groove variety and of high quality. It was removed intact and used in various construction jobs. Flooring was salvaged in large quantities. It also went into construction work. Thirty-five to 40 doors were saved from each ship; some were used on cars of the Detroit, Toledo & Ironton railroad; some were put into refrigeration plants as panelling.

Wood came from many places on the ships: From masts, booms, bunks, drawers, etc. Planking 2½ to 5 inches thick served as cargo batten in the holds of the boats. Hatch covers were taken off intact and used as platforms in construction work.

Scrap wood taken from the ships was taken first to tables where the nails were removed. It was then placed on a moving belt and carried a few feet to the ship woodworking plant. There it was cut to specified measure for use in making boxes and crates, for planking in construction work, for bulkheads to brace shipments in railroad cars, etc. Any piece of wood, 2 inches wide by 6 inches long could be used. Fifteen or 16 cords of wood too small to be salvaged were sent to the cupolas each working day.

The wood removed from each ship averaged between 80,000 and 90,000 feet. Scrap wood from the submarine-type boats was carried as cargo in the lakers. Sawdust was utilized in many ways: it was soaked in oil and used in sweeping floors; it was used in the butcher shops of the different Ford commissaries; it was used in the tumblers; it was sent to the pulverizers and mixed with coal for certain purposes. Twenty-five to 30 kegs of nails were sent to the electric furnaces each day and 32 or 33 pounds of steel derived from them. As many bolts and nuts as possible were salvaged and rethreaded; others were reduced to steel.

Three to four hundred pounds of paper was salvaged each day. This included not only waste paper but beaverboard and other paper combinations used in ship construction. All paper went to the company's paper mill where it was reclaimed. Radiators were removed intact, reconditioned and used in new buildings. Molding was saved as such when in good condition.

Furniture formed an important

Shops on the "disassembling line" at Fordson. The ships were warped from station to station for sequential scrapping operations

item. Oak swivel chairs and oak tables were reconditioned and used in various ways. Many of them were installed at the Henry Ford trade school. Some of the tables were used by draftsmen and clerks. Imitation leather on the cabin settees was preserved and used on Detroit, Toledo & Ironton work cars. Oakum packing was salvaged.

Hardware was removed in large quantities: hinges, locks, and door knobs were all reconditioned and sent to stock. All brass fasteners were saved; those that could be were preserved in their original form, others were reduced to metal. Mirrors that were in good shape were used in different buildings; defective ones were sent to the glass plant and used as cullet in the production of new glass. Cabin windows of standard size were saved and used in construction work; all other glass including porthole windows and picture frames was remelted as cullet.

Electricians removed all electrical fixtures. Navigation instruments were saved whenever found. Most of them, however, had been removed before arrival at Fordson. Engine room control systems were saved intact.

Forty to 50 steam and oil gages were salvaged from each ship; they were reconditioned and sent to power stock. Pumps of different sizes and purposes were recovered in large numbers. Steam injectors and ejectors were salvaged. Ice machines were saved as such.

Globes, lights, wash basins and lanterns all went to stock for future use; coffee urns, galley stoves and kitchen utensils were used in small quantities at the company's lumber camps; some scales were reconditioned and used in the Ford commissaries; eight meat chopping blocks were used in the commissaries; signal flags were cleaned and the cloth used for different purposes.

Cork taken from ice boxes and in small quantities from crews' quarters was preserved and put to various uses; much of it was sent to the Iron Mountain plant where it was used as dry kiln insulation. Asbestos was cut from the pipes and boilers. It was sent to a special asbestos plant where it was ground and molded into new blocks. Oil recovered from the engine room fuel-oil tanks and the storm-oil tanks was sent to the oil salvage department and reclaimed. Paint was found in many ships' storerooms. It was reclaimed.

Six or seven ventilators were reconditioned and sent to the commissary at the Lincoln plant. Others were sent to the fabricating shop where they were recovered as tin. Screen from the ships was in poor condition and was remelted. Metal ladderways were preserved as such and used in construction. Scuff plates were put to the same use.

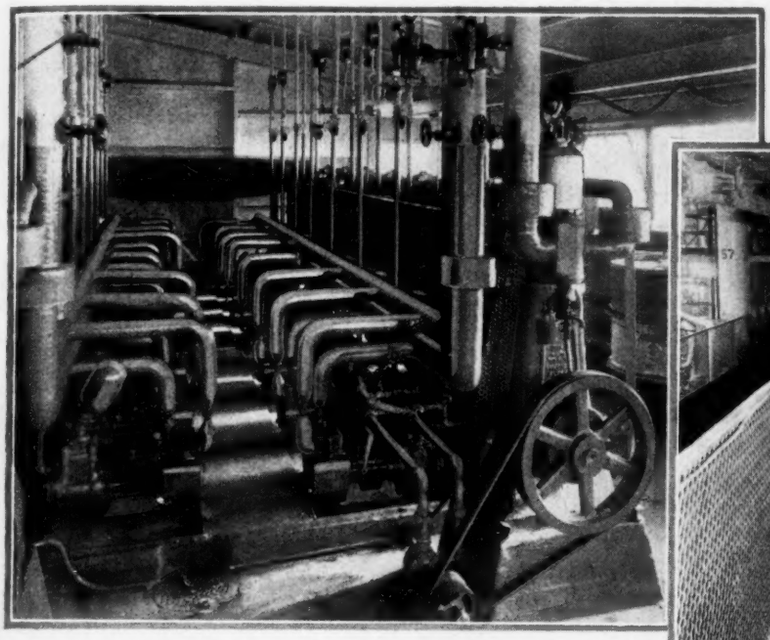
Bracket steps on the smoke stacks were used as fire ladder. Port-hole lids were remelted for their brass. Steering wheels were stored. The brass sprocket chains, cams and pulleys of the steering apparatus were all preserved and put to different uses.

Steel cable which was in good condition was saved intact. Frayed cable was remelted. Towing hawsers were put to various uses. Those in good shape were saved intact; others were unstranded to make twine; still others were chopped off for use as seat cushion packing.

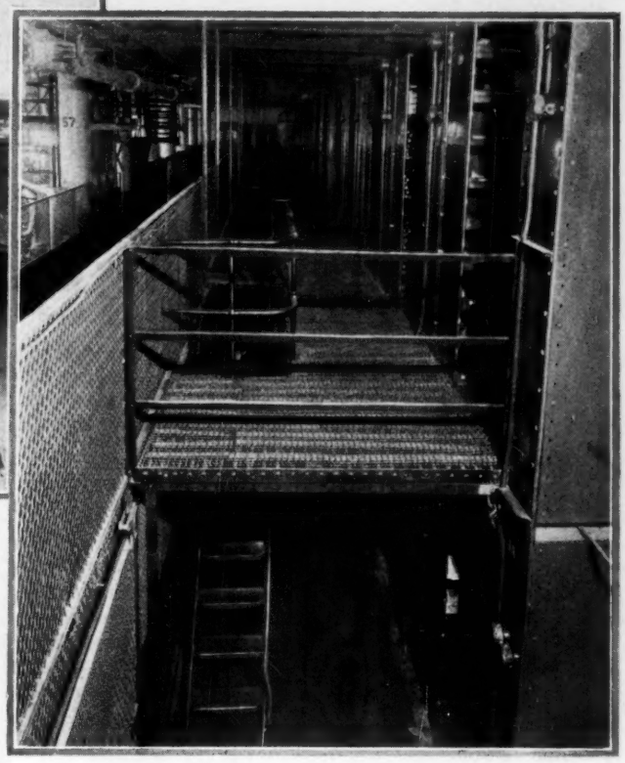
All pipe was removed without cutting and sent to a special pipe salvage department for reclaiming. Masts were burned off at the deck line, the rivets cut out, the wood parts dismantled and the outer shells rolled into sheet steel. Winches and windlasses were removed and sent to storage.

One hundred seventy-eight men were employed at the wood dock, not including those engaged in the removing of pipe and electrical fixtures. They stripped a ship of everything that could be loosened and moved readily. By the time a vessel was ready to be moved to its place on the main dismantling dock it had been fairly well cleared to the hull of all useful material.

(The fourth installment will be presented in an early issue).



Pumps from salvaged ships are now used to supply lacquer to the body line at Fordson



Salvaged gratings, stairways and railings from ships in service in the stockroom at Fordson

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One of the newest uses of nickel steel is for steam boilers which operate under pressures of 350 to 500 pounds per square inch.

Graphitization of White Iron Discussed

(*Concluded from Page* 571)

about equivalent to a reheating temperature of 640 degrees Cent. for about 16 days.

All of the graphitization produced in about 70 of these brief experiments resulted in the formation of the so-called temper carbon patches without the formation of flake graphite.

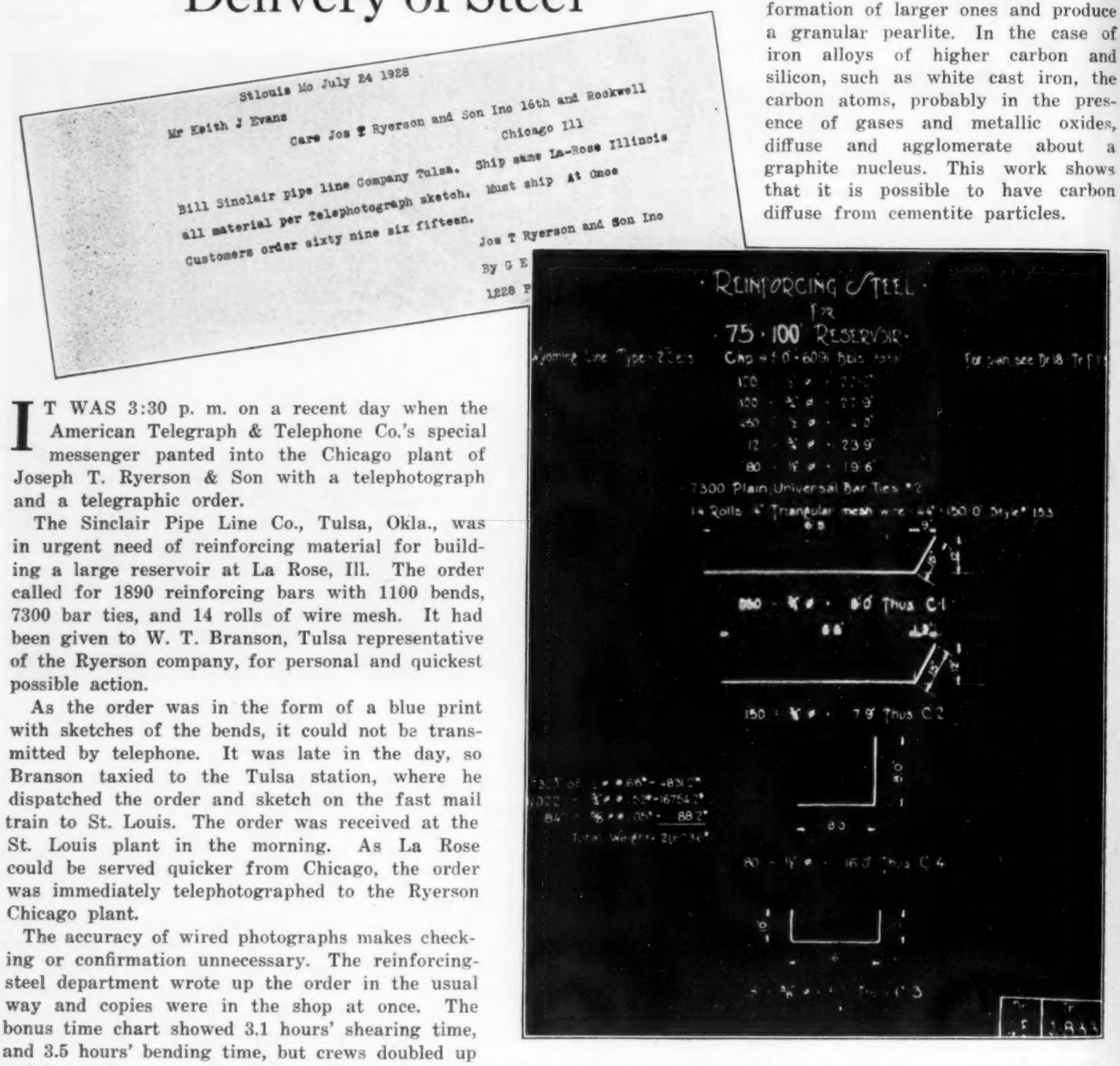
From a study of the results of the various heat treatments carried out, the following conclusions are drawn:

1. This and previous experiments have shown that graphitization will proceed on annealing below the without formation of flake graphite. lower transfomation point.

2. Graphitization on annealing progressed most rapidly in specimens which had been held at a temperature above the critical for the greatest length of time (4 hours) before the oil quenching. On microscopic examination of these quenched pieces no graphite particles could be detected with the microscope.

3. Small particles of cementite will decompose on annealing easier than particles of a larger size. The agglomeration of cementite particles on tempering steel of 0.40 per cent carbon, 0.20 per cent silicon, below the lower critical point must take place by the diffusion of carbon atoms with the result that the small particles of cementite unite in the formation of larger ones and produce a granular pearlite. In the case of iron alloys of higher carbon and silicon, such as white cast iron, the carbon atoms, probably in the presence of gases and metallic oxides, diffuse and agglomerate about a graphite nucleus. This work shows that it is possible to have carbon diffuse from cementite particles.

Picture Sent by Wire Speeds Delivery of Steel


Stlouis Mo July 24 1928

Mr Keith J Evans
Care Jos T Ryerson and Son Inc 16th and Rockwell
Chicago Ill

Bill Sinclair pipe line Company Tulsa. Ship same La-Rose Illinois
all material per Telephotograph sketch. Must ship At Once
Customers order sixty nine six fifteen.

Jos T Ryerson and Son Inc
By G E
1228 P

REINFORCING STEEL
FOR
75 · 100 RESERVOIR

7300 Plain Universal Bar Ties
14 Rolls 6" Triangular mesh

IT WAS 3:30 p. m. on a recent day when the American Telegraph & Telephone Co.'s special messenger panted into the Chicago plant of Joseph T. Ryerson & Son with a telephotograph and a telegraphic order.

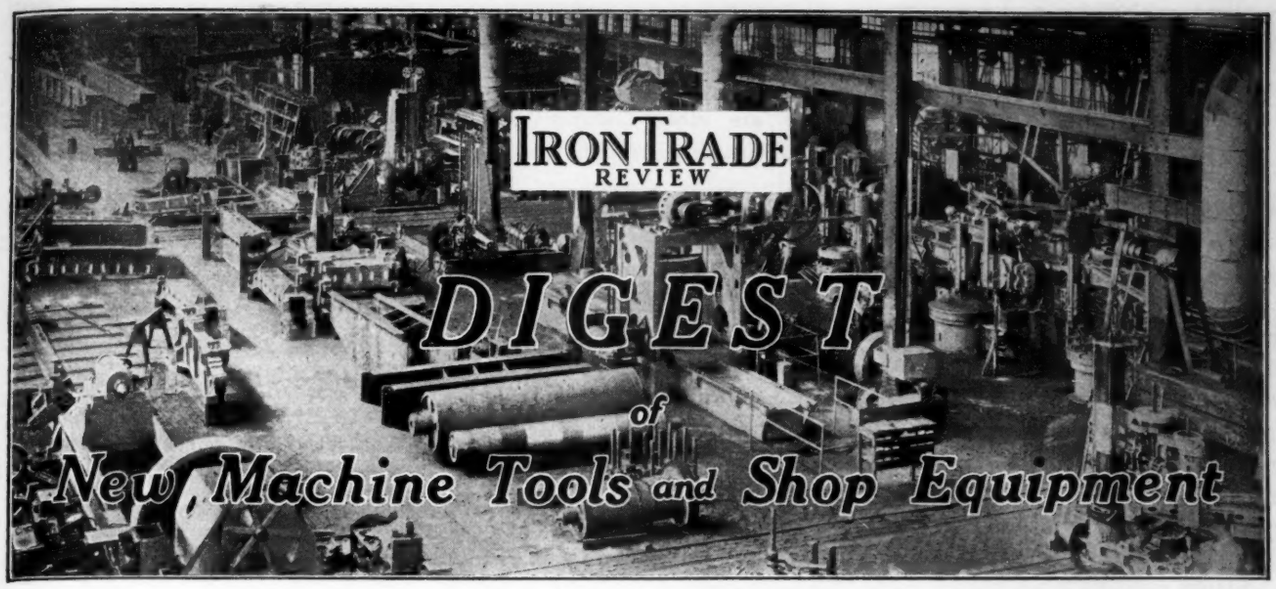
The Sinclair Pipe Line Co., Tulsa, Okla., was in urgent need of reinforcing material for building a large reservoir at La Rose, Ill. The order called for 1890 reinforcing bars with 1100 bends, 7300 bar ties, and 14 rolls of wire mesh. It had been given to W. T. Branson, Tulsa representative of the Ryerson company, for personal and quickest possible action.

As the order was in the form of a blue print with sketches of the bends, it could not be transmitted by telephone. It was late in the day, so Branson taxied to the Tulsa station, where he dispatched the order and sketch on the fast mail train to St. Louis. The order was received at the St. Louis plant in the morning. As La Rose could be served quicker from Chicago, the order was immediately telephotographed to the Ryerson Chicago plant.

The accuracy of wired photographs makes checking or confirmation unnecessary. The reinforcing-steel department wrote up the order in the usual way and copies were in the shop at once. The bonus time chart showed 3.1 hours' shearing time, and 3.5 hours' bending time, but crews doubled up and in one hour and 25 minutes the material was ready. In the meantime the traffic department had lined up a car and in 30 minutes more the reinforcing material for the Sinclair job was moving out of the plant.

The car number and routing were then wired to the Ryerson-St. Louis plant for advising the customer. The carload was switched from the Pennsylvania to the Santa Fe railroad, and left Chicago that night. The car reached La Rose at 5:20 in the morning, ready for use in the reservoir that day.

This is the first reported use of the telephotograph for speeding steel delivery and points the way to more general use of this new aid to industry. The accompanying illustrations show the telephotograph and telegram as sent.



May Standardize Machinery Color

ACCORDING to information which is available at this time, it is estimated that August sales of machine tools dropped somewhat from the level which obtained during the two preceding months. On the other hand, the August business was considerably better than that booked in the same month one year ago.

Regardless of what may happen in the next four months, it is certain that orders in 1928 will surpass those taken in 1927. Already, reports are being heard that many companies in eight months have consummated as much or more business than in all of last year. The volume for 1927 was not a record but it was satisfactory, thus it may be taken for granted that manufacturers and dealers will find no serious complaint for the current year

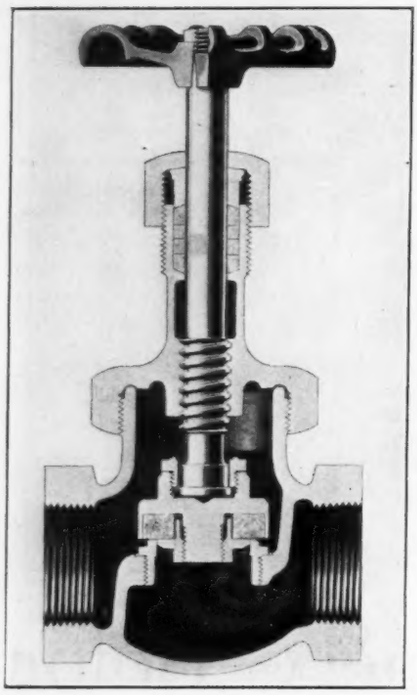
The fall months normally show a revival of trade in most lines of activity and the assumption is that good business is in prospect for the four months yet to come. No large individual inquiries are in sight, but with better operations in automotive lines and the usual upturn in general manufacturing, a great number of small orders is expected to keep order books well filled.

The question of color now is of concern to the builders and users of machine tools. Demand for color in this industry has been coincident with the increased use of color in automobiles and typewriters, although apparently not a result of it. Whereas,

(*Concluded on Page* 615)

Iron Trade Review's Calendar of New Equipment

No.	Item	Builder	Comment	Date Described
197.	Regulator	Alexander Milburn Co.	Reduces gas pressures in welding	Aug. 9
198.	Belt conveyor idler	Fairfield Engineering Co.	Interchangeable rollers	Aug. 9
199.	Portable cooling fan	Peerless Electric Co.	For industrial use; 18-inch diameter	Aug. 9
200.	Welding torch	Air Reduction Sales Co.	Light size; for thin-metal welding	Aug. 9
201.	Dinkey controller	Electric Controller & Mfg. Co.	Welded steel frame; improved ventilation	Aug. 9
202.	Radiation pyrometer	Colonial Supply Co.	Pocket size; high sensitivity	Aug. 9
203.	Air motor hoist	Ingersoll-Rand Co.	20,000-pound capacity; equipped with safety brake	Aug. 9
204.	Metal punch	Whitney Metal Tool Co.	Roller-bearing; lever-type	Aug. 9
205.	King bolt pilot	Scully Steel & Iron Co.	For use as extension on expansion reamers	Aug. 9
206.	Power presses	American Can Co.	High production; six engaging point clutch	Aug. 9
207.	Grinder and snagger	United States Electrical Tool Co.	High speeds; direct or alternating current	Aug. 16
208.	Control panel	General Electric Co.	Used with motor-generator battery charger	Aug. 16
209.	Signal relay	General Electric Co.	Warns of power failure or voltage drop	Aug. 16
210.	Journal turning lathe	Niles Tool Works Co.	For double quartering and crankpin turning	Aug. 16
211.	Cable clip	Eureka Metal Products Corp.	Two fully grooved jaws	Aug. 16
212.	Ladle gearing	Whiting Corp.	Ball bearings; cast-steel housing	Aug. 16
213.	Connecting rod borer	Niles Tool Works Co.	For boring and facing operations	Aug. 16
214.	Electric motor	Allis-Chalmers Mfg. Co.	Totally enclosed and fan-cooled	Aug. 23
215.	Car wheel lathe	Niles Tool Woks Co.	Improved method of chucking	Aug. 23
216.	Disk sander	United States Electrical Tool Co.	Portable electric; ball bearing construction	Aug. 23
217.	Vertical-spindle grinder	Hisey-Wolf Machine Co.	Vertical, horizontal and double slide adjustments	Aug. 23
218.	Electric handsaw	Wappat Gear Works Inc.	Equipped with safety guard; 2-inch cutting capacity	Aug. 23
219.	Strip coiler	D. A. Clark Co.	Straight-line drive arrangement	Aug. 23
220.	Electrode holder	Fusion Welding Corp.	Minimizes arcing and overheating	Aug. 30
221.	Pneumatic riveter	Hanna Engineering Works	Exerts 1-ton pressure; weighs 15 pounds	Aug. 30
222.	Steam valves	Jenkins Bros.	250-pound working pressures	Sept. 6
223.	Roll lathe	Mackintosh-Hemphill Co.	Equipped with roller bearings	Sept. 6
224.	Hydraulic punch	Hydraulic Tool Works	Light weight; hand operated	Sept. 6
225.	Milling machine	Brown & Sharpe Mfg. Co.	Vertical-spindle type; belt or direct-motor drive	Sept. 6
226.	Riveting hammer	Ingersoll-Rand Co.	Made in four sizes with two types of handles	Sept. 6
227.	Sand digger	Clark Tructractor Co.	9-foot bucket mounted on gasoline tractor	Sept. 6
228.	Arc welder	Lincoln Electric Co.	For welding heads of tanks	Sept. 6
229.	Floodlight	Prest-O-Lite Co. Inc.	For attaching to acetylene tanks	Sept. 6
230.	Metal punch	Whitney Metal Tool Co.	Two sizes; deep-throat design	Sept. 6
231.	Air hoist	Chicago Pneumatic Tool Co.	Increased speed; four-cylinder air motor	Sept. 6
232.	Sandblast helmet	Pangborn Corp.	Ventilation controlled by operator	Sept. 6



No. 222—Valve with renewable disk

Renewable Disks in New Bronze Valves

No. 222

Jenkins Bros., 80 White, New York, announce a new line of bronze valves with renewable resilient disks for 250 pounds steam working pressures. Models include globe, angle, cross and horizontal and angle check patterns furnished screwed or flanged in sizes ranging from ¼-inch to 2-inch. The globe, angle and cross patterns are furnished with renewable seat rings. As shown in the accompanying illustration, the bonnet screws over the body, a construction which is said to add strength to the assembly. A bronze gland which aids in preventing leaking around the spindle, a deep stuffing box packed with asbestos ring packing and a manganese bronze spindle are other features of the globe, angle and cross valves.

Roller Bearings Feature of Lathe Design

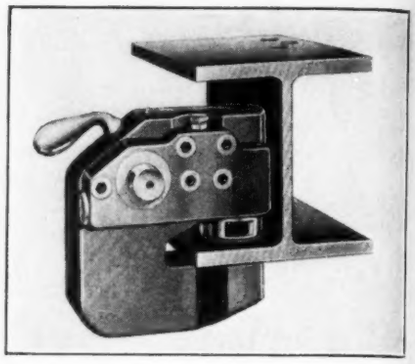
No. 223

Mackintosh-Hemphill Co., Twelfth and Etna streets, Pittsburgh, recently has completed two new direct motor-driven, heavy-duty roll lathes equipped with roller bearings on all gear shafts, a new departure in roll lathe design. This use of roller bearings on all gear shafts is said to insure alignment of gears at all times, thereby minimizing chatter and wear. The head stock of the lathe shown in the accompanying illustration is equipped with roller bearings and provided with oil spray lubrication for the gear teeth and pressure grease lubrication for the bearings. The motor is mounted directly on the head stock and is connected to the head stock drive through a flexible coupling. The lathe is capable of turning simultaneously two rolls, each 8 feet 6 inches long and 36 inches maximum diameter.

Power and Light Weight Combined in Punch

No. 224

Hydraulic Tool Works, Island road and Botanic avenue, Philadelphia, has placed on the market a portable, hydraulic punch weighing only 55 pounds. The accompanying illustration shows the punch operating upon an 8-inch 50-pound H-section.



No. 224—Light hydraulic punch

The device will punch a 13/16-inch diameter hole or a ¾-inch square hole through a plate ⅝ inch in thickness. Due to its light weight the punch can be transported and operated by one man; the punching is accomplished by handpower applied to the pump handle. The pressure medium is oil which also lubricates all the working parts. The tool is also furnished with a standard angle plate attachment which adapts it for stationary mounting on a floor or bench. Height is 9¼ inches; length 8¾ inches, and breadth 7 inches.

Milling Machine Has Two Operating Positions

No. 225

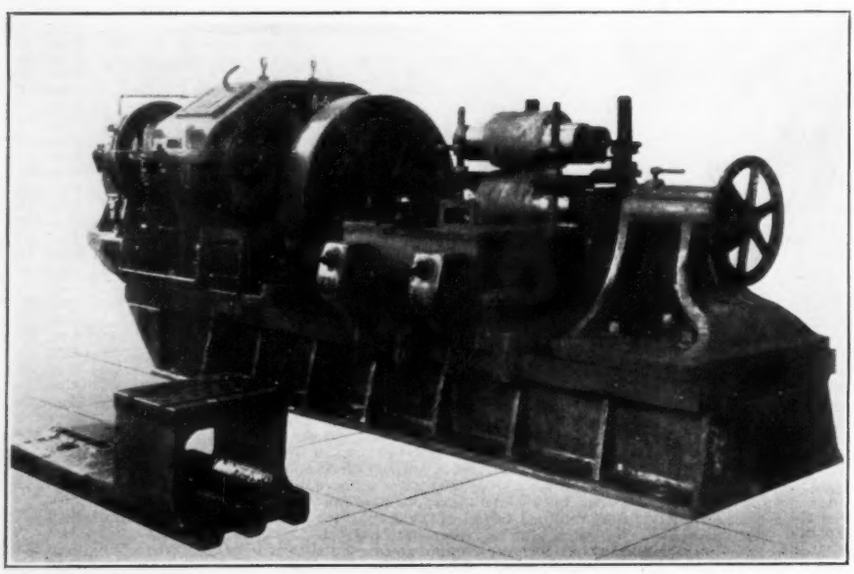
Brown & Sharpe Mfg. Co., Providence, R. I., recently has introduced a further addition to its line of milling machines, a vertical-spindle milling machine. The machine is entirely gear driven with anti-friction bearings from driving pulley to spindle and in the feed and power travel mechanisms. Two operating positions are provided with all levers controlling the operation of the machine available from either position. One of the important features is the automatic disengagement of the power fast travel with the simultaneous engagement of the cutting feed without any attention on the part of the operator. Automatic lubrication with filtered oil is provided for all mechanisms within the column and the driving pulley. The knee assembly is also automatically oiled by a separate pump installed in the knee for this purpose..

Riveting Hammers Built in Four Sizes

No. 226

Ingersoll-Rand Co., 11 Broadway, New York, recently has placed on the market a new line of riveting hammers, manufactured in four sizes with 5, 6, 8 and 9-inch strokes. A new

(*Concluded on Page* 614)



No. 223—Heavy-duty roll lathe equipped with roller bearings

Editorials

Who Will Solve the Farm Problem?

RECONCILING historical differences between the urban and farm populations of the country may appear as difficult as the smoothing out of relations between capital and labor, something once considered impossible. That great progress has been made toward the solution of both problems, however, there can be no doubt. The capital-labor question was considered of primary importance politically some years ago, but now that the two have viewed their interests as identical, political parties no longer push it as a major issue. "The farm problem" now is in the front rank for attention, and it will be interesting to see how it is "solved."

Two schools of thought are concentrating on how to relieve the difficulty of the American farmer. One is represented by the politicians who see no other method than to supply some artificial financial stimulus. The other is composed of a group of engineer-economists, who refuse to raise any false hopes or structures, but who seek to apply sound principles. They are attacking the problem as they would that of any other business enterprise, from the standpoint of production and distribution, thereby enabling the farmer to regain his economic footing instead of imbuing him with a spirit of dependence. The leading article in this issue gives an insight into how the agricultural engineers are contributing toward the success of the farmer.

As in many other industries, steel included, mechanization is way ahead of distribution, and the solution of the latter problem depends on a type totally different from the politicians who can only suggest a subsidy. Better business methods on the farm, plus better distribution, whereby the farmer will regulate the flow of his goods to market and obtain a larger percentage of the price paid by the consumer—these are the things he must look to for the solution of his problem.

Price Movement Reflects Good Business

AN INTERESTING bit of market history has been written in the reports of the pig iron price movement, as published recently in IRON TRADE REVIEW, showing the pivotal position of the western Ohio, Indiana and Michigan districts. Prices were in a rut for months, while business was fairly good and furnace stocks were being reduced. Finally came the turning point. Blast furnaces in Cleveland raised their price for delivery in outside territory, meaning principally southern Ohio, western Ohio, Indiana and Michigan. Competition from this source easing, lake furnaces west of Cleveland obtained more for their iron. This gave Chicago furnaces the opportunity to raise their prices. St. Louis, feeling less competition, advanced. Birmingham, finding the market along the Ohio river stronger by reason of the action of the lake furnaces, asked more. Buffalo furnaces followed suit. Valley makers were among the last to get into step. With a higher valley price, Cleveland furnaces are prepared to ask more for local delivery, and probably more again for outside shipment.

And thus the cycle was completed, all within ten days, after prices had been stationary for months. An arbitrary attempt at artificial stimulation of prices could not have had such an effect. If all makers were not obtaining substantial volume of business the chain would have been broken at its weakest link. It is proof of the generally satisfactory market conditions, in iron and steel.

World Industrial Conditions Saner

ATTENTION was called in the July 19 issue of IRON TRADE REVIEW to the steadily diminishing number of labor disputes in the United States. The opinion was expressed that a better appreciation of the economic loss involved is serving to check the outbreak of strikes. The tendency is not only pronounced in the United States, but is world wide. In the leading countries a remarkable decline in strikes and lockouts is noted since 1919 and 1920. As the world has returned to work after the great war, industrial relations have become more peaceful.

In the United States only three persons per thousand of population were involved in strikes or lockouts in 1927, as against 40 in 1919; in Great Britain only two as against 63 in 1919; in France only two against 37 in 1920; in Germany six against 135 in 1920; in Belgium five compared with 40 in 1920; in the Netherlands two compared with ten in 1920, and in Canada two against 16 in 1919. In only one country from which the National Industrial Conference board has succeeded in obtaining data is this general rule reversed. The number of strikes and lockouts in Australia has increased.

The greatest industrial strike in any of the

countries in the period under review occurred in Germany in 1920, with 8,323,977 workers affected. The general strike in Great Britain in 1926 is officially estimated as having involved 3,000,000 workers.

Comparing the number of industrial disputes in the world today with those of 1919 and 1920, when turmoil was at its peak, may tend to give an exaggerated view of the stability of present relations. Nevertheless, such a sharp decline in labor disputes is a sure indication that more rational industrial conditions prevail. Where is bolshevism today?

"Cheap Labor" vs. Low Costs

DON'T confuse "cheap labor" with low production costs. China has a surplus of cheap labor, and therefore is referred to sometimes as a country of having special advantages. Let us see how the cheap Chinese labor compares with American machinery, in production.

A series of studies of industrial problems in China, published by the Chinese government bureau of economic information, includes an article on the iron and steel industry in that country. Considering all items of cost, at some of the largest plants, direct wages constituted the smallest percentage. Raw materials were 90 times the cost of direct labor.

The cost of producing a ton of iron ore with labor of this class was approximately $2.80. Transportation brought the cost at the works to about $4 a ton. In the Lake Superior iron ore trade standard Mesabi nonbessemer ore is sold at $2.46 a ton, at the mine, 34 cents less than it costs the Chinese to produce a ton. The price of the Mesabi ore is $4.25, delivered at lower lake ports.

Could there be a more striking example of the advantages of labor-saving machinery? The iron ore people in the Lake Superior district will be interested in this—they get less for their product than do the Chinese!

Short Day Has Unexpected Effect

ADOPTION of the eight-hour day is not as simple a matter in Europe as it has proven in the United States. Here the worker wanted the added hours for other purposes than work. In Europe he wants the work and the remuneration that comes from it.

In Belgium attempts to enforce the rule stringently have resulted, according to *L'Echo de la Bourse*, in many workers taking supplementary jobs and usually at less rates of pay than regular workers. This works out eventually for a lower scale of wages and poorer living conditions for the working classes for whose benefit the shorter day is planned.

This is a result not foreseen by its sponsors and application of the rule should be modified, in the opinion of observers there. Probably the difficulty will be worked out in time without the harm that now threatens. It is a similar case to the experience of Americans employing labor in tropical countries at higher wages than those prevailing in the vicinity. The result usually is that the workers put in only a day or two a week as their earnings in that time equal a full week at usual rates, and that is all they need.

What Our Readers Are Thinking

Fixing Precision Value for the Inch

ACCEPTING the value of international meter as 1,553,164.13 waves of the red rays of cadmium, and accepting the conversion factor of inch = 25.4 millimeters, would give the number of light waves in the inch by simple multiplication: 394,503,689.02. Inserting the decimal place, this is 39450.368902 wave lengths in an inch.

The question arises of how many significant figures are necessary, and this is arrived at *practically* when we remember there are 12 inches in a foot and 3 feet in a yard. The number 12 immediately suggests that the decimal 0.368802 is very near to one-third using which makes 39450 1/3 wave lengths in an inch. Multiplying by 12 gives the number of wave lengths in a foot as 473,404, even; and multiplying this again by three gives the number of waves in a yard as 1,420,212, also an even number.

It would seem advisable to recommend that the United States, Great Britain, Canada and the other British commonwealths, accept the value of international meter of 1,553,164.13 wave lengths, and then agree on the conversion factor of 1 inch equals 25.4 millimeters for practical use, and further agree on establishing the wave length value of the inch as 39540 1/3 waves as basic.

It is seen that this will act to give the inch its precise value and relative status which all desire so urgently.

In the United States the acceptance of such a proposal would probably remove much of the opposition to the order, approved by the secretary of the treasury in 1893, which is claimed to have given the metric standards an authority which congress has never intended for them.

This would not only pave the way for accord between Britain and America, but would also bring scientists and manufacturers and the government departments in the United States itself to a better mutual understanding.

The acceptance of this proposal should be followed by the making of physical standards for the foot, yard, etc., having at least the same degree of refinement as the present metric standards. These could then be used as fundamental without conversion from metric when comparing industrial standards, and also as a basis for whatever precision work on length standards is done.

LUTHER D. BURLINGAME, *Brown & Sharpe Mfg. Co. Providence, R. I.*

IRON TRADE REVIEW

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E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Adapting Farm Equipment to Modern Requirements. Page 565.

NEW and interesting developments in farm implements are featured in the leading article in this issue of IRON TRADE REVIEW. Many readers do not know that when agricultural engineers find it impossible to design machines to meet the peculiarities of certain plants, the characteristics of those plants are being changed, through processes of hybridization, to accommodate them to practical equipment. The rapid tendency toward developing "non-stomach" uses for agricultural products, and to manufacture them into various materials, also is developing new machines and new methods.

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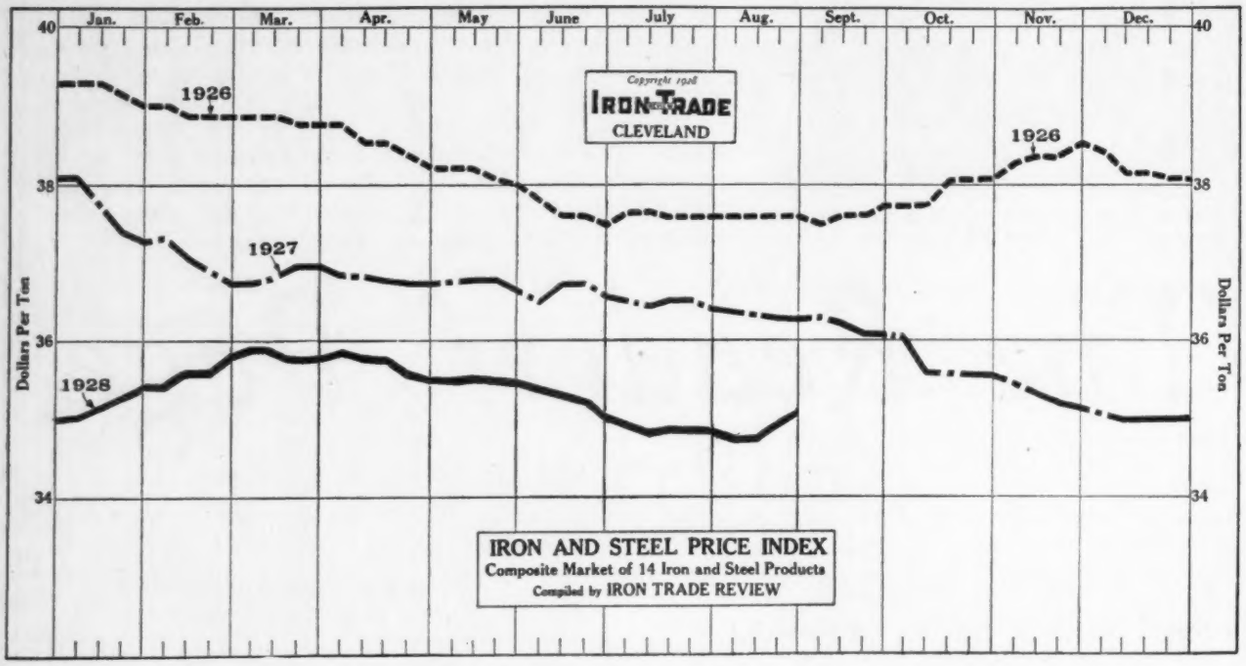
The Business Trend



Steel Quotations Point Higher

By JOHN W. HILL, Financial Editor

THE most important development in the iron and steel trade in recent weeks has been the strengthening tendency of prices. This movement is now being reflected in IRON TRADE REVIEW'S composite market average of 14 iron and steel products. The index touched its low point in the first week of August. It has been rising steadily since. Steel company profits should benefit.

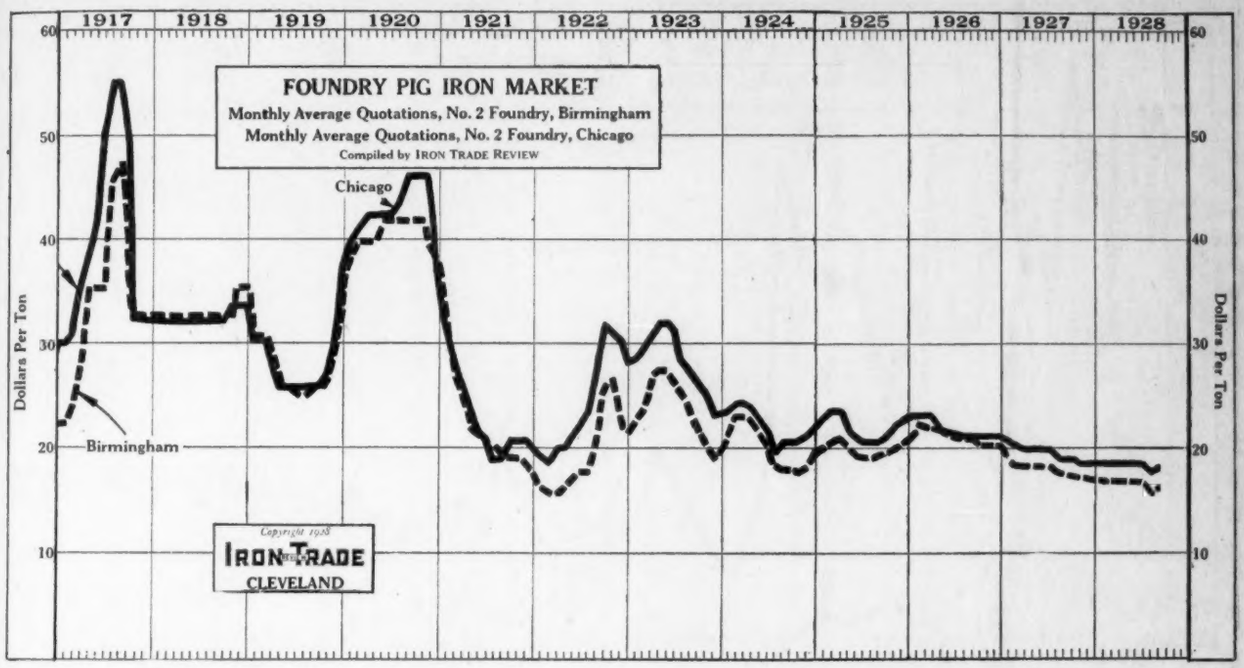
AT THE beginning of August the composite average stood at $34.89 a ton. This compared with $35.23 in January, and with $36.25 one year before. The level of iron and steel prices at the August low was only 32 per cent over the 1913 average. Actually it was the lowest point reached since 1916, except for a few months in the depression years of 1921 and 1922.

THERE are many indications that prices of iron and steel have fallen too far. In the first place they are out of line with all industrial prices which stand about 50 per cent over the 1913 level. Secondly, earnings of iron and steel companies, at about 5 per cent on invested capital, have been notoriously low despite large volumes of output.

INCREASINGLY efficient production methods have partly offset declining prices in the steel industry. In other words, the benefits to the industry from the many millions expended for improved methods have been negative. While earnings have not been improved, prodigious losses have been averted.

THERE seems now to be a better understanding on the part of steel consumers that prices have been too low. This is helping to lessen some of the resistance against reasonable advances. The most important factor, however, is that demand has expanded on a large scale. In some lines the productive facilities of the mills are being taxed to the limit to supply needs of the consumers.

THE appearance of such a condition as this in the midst of the normally dull season, is very instructive. It indicates that perhaps after all the surplus of steel capacity is none too great for all emergencies. This is impressing buyers more than any other argument in the justice of firmer prices, while it is giving sellers more faith in their ability to maintain fair price levels for their products.

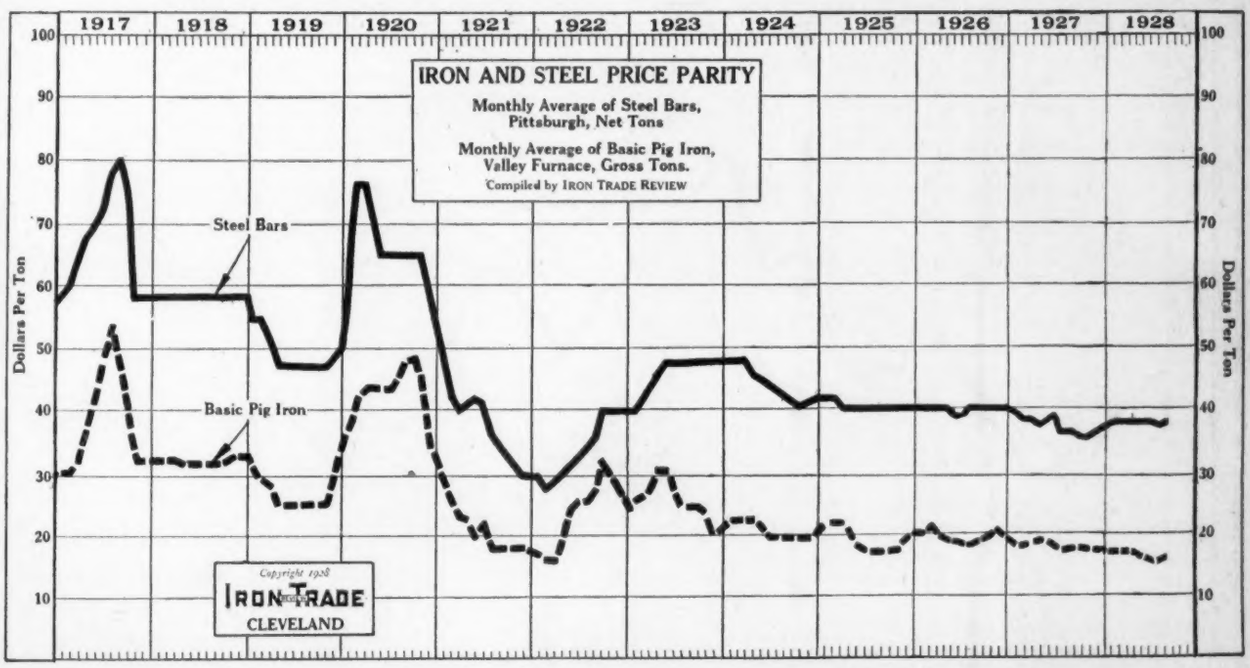


Foundry Pig Iron Market

FOUNDRY pig iron has taken an upward turn. The August average for No. 2 foundry, Chicago, was $17.75 compared with $17.60 a ton in July. The quotation apparently struck bottom at $17.50 a ton during August and rebounded during the last week to $18. Southern No. 2, Birmingham, likewise rebounded from a low point of $15.50 in August to a quotation of $16.25 a ton during the last week of the month. One year ago Chicago iron was quoted at $19.50 and southern iron at $17.25.

Steel Price Parity

THE spread between basic pig iron and finished steel is greater now than at any time in recent months. Some further advance for pig iron is indicated. With a quotation of $16 a ton for basic iron and $38 a ton for steel bars, Pittsburgh, there is a spread of $22. This compares with a difference of $15.74 one year ago when basic iron was quoted at $20.26 a ton and steel bars at $36. In January of this year with steel bars at $37 and pig iron at $17 the spread was $20.



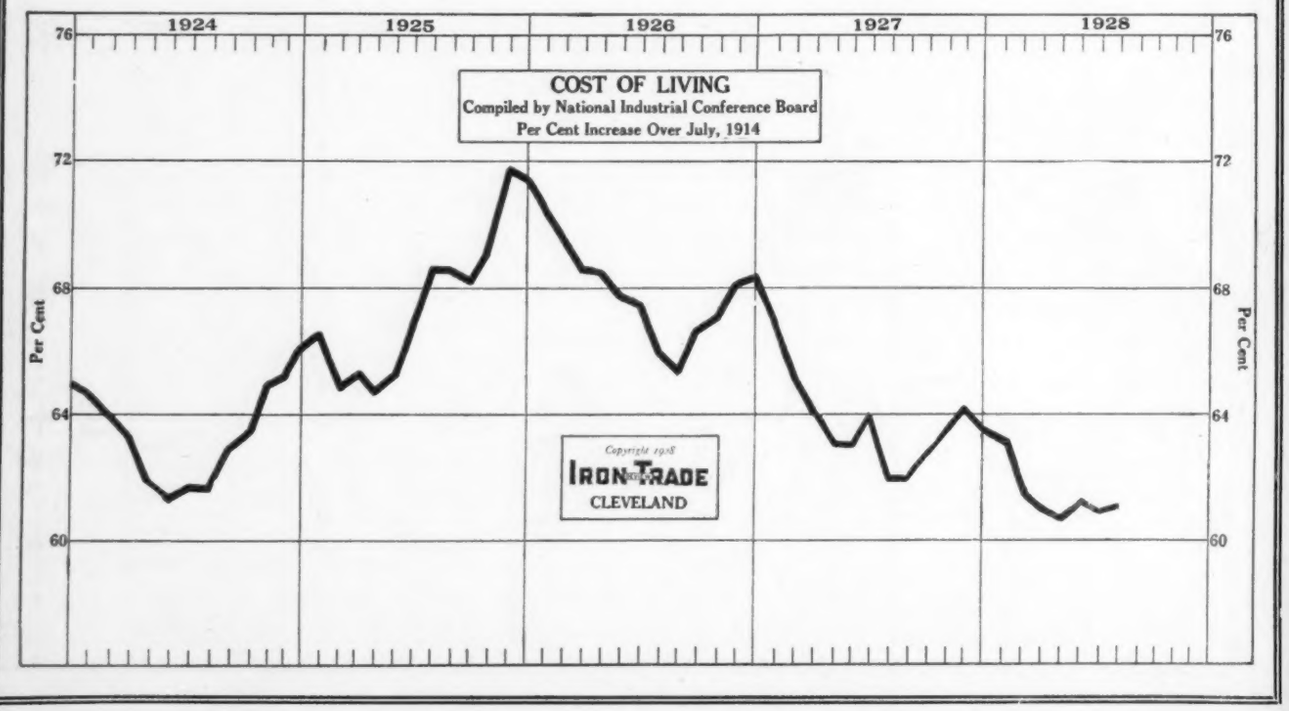
The Business Trend

Iron and Steel Foreign Trade

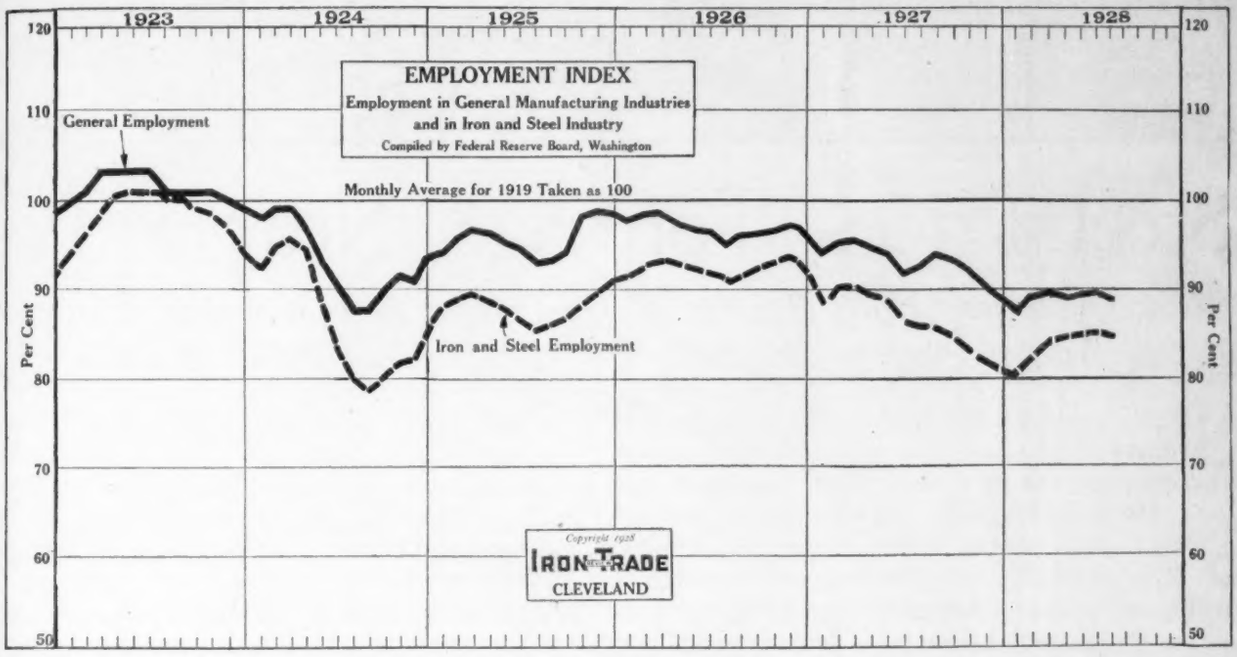
DURING July there were declines for both exports and imports of iron and steel products. Exports for the month of 253,336 tons compared with 262,052 tons in June and with 190,502 tons in July, 1927. Imports amounted to 47,830 tons as against 65,819 tons in the preceding month and 61,112 tons in July one year ago. Exports for seven months were 1,612,078 tons compared with 1,323,969 tons for the like period one year ago. Imports in that period of 437,725 tons compared with 442,469 tons in 1927.

Cost of Living

SINCE the decline in the cost of living from the level of January, there has been very little fluctuation in the index as compiled by the National Industrial Conference board. The index for July shows a small upward turn compared with the index number standing at 161.1 compared with 160.9 one month before. One year ago the index stood at 162.2. The most important changes in living cost items have been the recession in rent with some decline in the cost of fuel and lighting.



The Business Trend

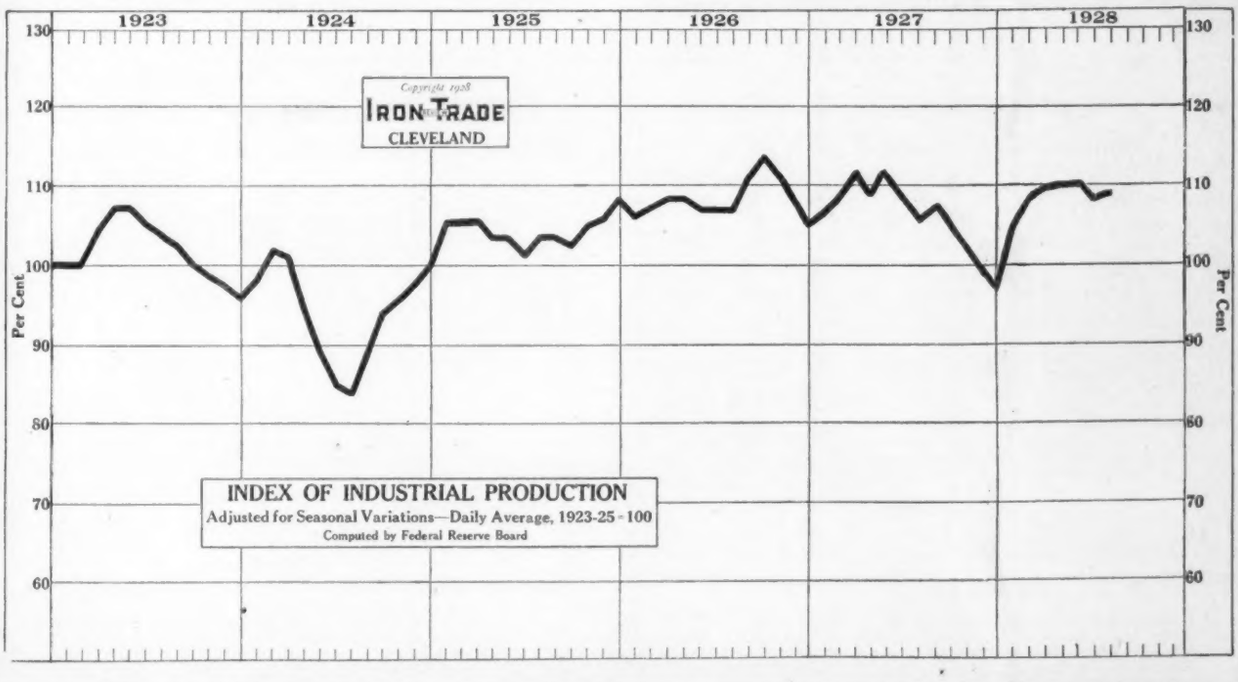


Employment Index

THE hot weather season this year brought less than the customary decline in employment. This is indicated by the employment index compiled by the Federal Reserve board. This index shows that general factory employment in July stood at an index of 88.5 against 89.6 one month before. Iron and steel index of employment stood at 84.6 in July compared with 85 one month before. The general trend of employment over recent months has been upward compared with decline a year ago.

Industrial Production

THE index of industrial production apparently touched its low point in June. July brought an appreciable recovery. The index compiled by the Federal Reserve board, which makes allowance for seasonal variations advanced in July to 109 against 108 one month before. Production of steel, bituminous coal, petroleum, automobiles and footwear was larger in July than in June. Activity in textile mills, meat packing and some other lines declined slightly during the month.



Steel Prices, Tonnage, Near a Test

New Quotations Up to Buyers, While Volume Rests with Fall Pickup—August Pig Iron Output Rises Slightly—Iron Prices Holding

STEEL prices and tonnage, both emerging from summer in an unusually strong position, are approaching a test. After this week steel bars, plates and shapes are to cost $2 per ton more. Fourth quarter contracts for sheets, strip and other finished products will shortly be solicited at higher prices. Advances announced by producers in recent weeks have strengthened the market sentimentally, but now they must undergo the pressure of buyers.

Market Strength Will Be Weighed

Not for several years, if ever, have many producers experienced a July and August of such proportions in bookings and production. It has been generally believed that this material was passing directly into consumption, represented an expansion of summer rather than an anticipation of fall requirements, and was not artificially stimulated by the threat of higher prices. Now, with the summer holidays and vacations past and business supposedly normal, the sureness of the market's footing will soon be revealed.

Labor day caused little impairment of steel production. On a daily basis new business, though featureless, has been equal to the August rate. The aggregate of small orders from widely diversified sources is surprisingly high, while tonnage requirements from the automotive industry hold up as increased schedules of some manufacturers offset the curtailment of others. Several important pipe lines, one requiring 42,000 tons, may be placed this week. As the mills acquire moderate backlogs they are able to schedule rollings more economically.

Pig iron has kept step with this buoyancy in steel by registering an increase in production in August, thereby reversing the downtrend since May. With a daily rate of 101,161 tons, August gained 2 per cent over the 99,120 tons of July and 6 per cent over the 95,183 tons of last August. The August total of 3,136,008 tons compares with 3,072,711 tons in July and 2,950,674 tons in August, 1927.

Eight-Month Total Little Behind 1927

The gap between last year's production is rapidly being closed, the eight-month total for 1928

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Sept. 5, 1928	August 1928	June 1928	Sept. 1927
PIG IRON				
Bessemer, del., Pittsburgh	$18.76	18.76	18.76	19.86
Basic, valley	16.00	16.00	15.81	17.15
Basic, eastern, del. eastern Pa.	19.00	19.00	19.10	19.75
No. 2 foundry, del., Pittsburgh	18.51	18.26	18.61	19.26
No.2 foundry, Chicago	18.00	17.60	18.00	19.50
*Southern No. 2, Birmingham	16.25	15.65	15.90	17.25
*Southern Ohio, No. 2 Ironton	19.00	19.00	19.00	19.00
**No. 2X, Virginia furnace	20.00	20.00	20.50	21.50
**No. 2X, eastern, del. Phila.	20.76	20.76	21.26	21.01
Malleable valley	17.00	17.00	17.00	17.50
Malleable, Chicago	18.00	17.60	18.00	19.50
Lake Superior charcoal del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del. Pittsburgh	18.01	18.01	18.76	18.76
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	94.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.75	2.75	2.60	2.85
Connellsville, foundry, ovens	3.75	3.75	3.50	4.00
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	33.00	33.00	32.60	33.90
Sheet bars, open-hearth, Pittsburgh	33.00	32.20	33.50	33.90
Billets, open-hearth, Pittsburgh	32.00	32.00	32.50	33.00
Wire rods, Pittsburgh	42.00	42.00	44.00	43.00

	Sept. 5, 1928	August 1928	June 1928	Sept. 1927
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.85	1.85	1.80
Steel bars, Chicago	2.00	2.00	2.00	1.85
Steel bars, Philadelphia	2.17	2.17	2.17	2.07
Iron bars, Chicago	2.00	2.00	2.00	2.00
Shapes, Pittsburgh	1.90	1.85	1.85	1.80
Shapes, Philadelphia	2.01	2.01	2.06	2.02
Shapes, Chicago	2.00	2.00	2.00	1.85
Tank plates, Pittsburgh	1.90	1.85	1.85	1.80
Tank plates, Philadelphia	2.10	2.10	2.10	2.07
Tank plates, Chicago	2.00	2.00	2.00	1.85
Sheets, black, No. 24, Pittsburgh	2.65	2.65	2.70	3.00
Sheets, blue anl., No. 10, Pittsburgh	2.00	2.00	2.00	2.25
Sheets, gal., No. 24, Pittsburgh	3.50	3.50	3.55	3.85
Sheets, black, No. 24, Chicago	2.80	2.80	2.80	3.15
Sheets, blue anl., No. 10, Chicago	2.15	2.15	2.15	2.40
Sheets, galvanized, No. 24, Chicago	3.65	3.65	3.70	4.00
Plain wire, Pittsburgh	2.40	2.40	2.50	2.40
Wire nails, Pittsburgh	2.55	2.55	2.60	2.55
Tin plate, per base box, Pittsburgh	5.25	5.25	5.25	5.50
SCRAP				
Heavy melting steel, Pittsburgh	15.50	15.00	14.70	15.00
Heavy melting steel, eastern Pa.	13.00	12.75	13.15	14.00
Heavy melting steel, Chicago	12.75	12.65	12.60	12.20
No. 1 wrought, eastern Pa.	14.50	14.80	15.25	15.75
No. 1 wrought, Chicago	12.30	12.40	12.70	12.70
Rails for rolling, Chicago	15.00	15.00	14.85	15.20

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

STEEL PLATES

Pittsburgh	1.90c
Philadelphia, del.	2.05c to 2.15c
New York, del.	2.125c to 2.225c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland	2.09c
Buffalo	2.00c
Coatesville, Sparrows Point	1.95c to 2.00c
Birmingham	2.05c
Pacific Coast, c.i.f.	2.25c

STRUCTURAL SHAPES

Pittsburgh	1.90c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.14c to 2.19c
Boston, del.	2.265c to 2.415c
Chicago	2.00c
Cleveland, delivered	2.09c
Buffalo	2.00c
Bethlehem	1.95c to 2.00c
Birmingham	2.05c
Pacific Coast, c.i.f.	2.35c

BARS

SOFT STEEL

Pittsburgh	1.90c
Chicago	2.00c
Birmingham	2.05c
Buffalo	2.00c
Pacific Coast, c.i.f.	2.35c
Cleveland, mill	1.85c
Cleveland, delivered	1.92½c and 2.04c
Philadelphia, delivered	2.17c to 2.22c
New York, delivered	2.19c to 2.24c
Boston, delivered	2.265c to 2.415c
Pittsburgh, cold finishing	2.00c to 2.05c
Pittsburgh, forging quality	2.10c to 2.15c

RAIL STEEL

Chicago Heights	1.85c to 1.90c
Eastern mills	1.75c

IRON

Chicago	2.00c
New York, delivered	2.14c to 2.24c
Philadelphia, delivered	2.12c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet	2.15c
Chicago, billet	2.30c to 3.00c
Chicago, rail steel	2.00 to 2.60c
Chicago, rail steel, road and bridge work	1.85c to 1.95c
Philadelphia	2.47c

COLD FINISHED STEEL

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.20c
Shafting (turned, polished) Pittsburgh	2.20c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.45c to 2.90c
Cold finished steel bars, Cleve.	2.25c

TIN AND TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.25
Gary, Ind., base 10 cents higher.	
Long ternes, primes, No. 24	4.10c

*Price subject to quantity differentials.

SHEETS

SHEET MILL BLACK

No. 24, Pittsburgh base	2.65c
No. 24, Philadelphia, delivered	2.92c to 3.02c
No. 24, Gary, Indiana Harbor	2.75c
No. 24, Chicago, delivered	2.80c
No. 24, Birmingham, base	2.90c

TIN MILL BLACK

No. 28, Pittsburgh, base	2.85c to 2.90c
No. 28, Gary, base	2.95c to 3.00c

GALVANIZED

No. 24, Pittsburgh, base	3.45c to 3.55c
No. 24, Philadelphia, delivered	3.72c to 3.82c
No. 24, Gary, Indiana Harbor	3.60c
No. 24, Chicago, delivered	3.65c
No. 24, Birmingham, base	3.70c

BLUE ANNEALED

No. 10, Pittsburgh, base*	2.00c
No. 24, Philadelphia delivered	2.22c to 2.42c
No. 10, Gary, Indiana Harbor	2.10c
No. 10, Chicago, delivered	2.15c
No. 10, Birmingham, base	2.20c

*Plus 10 cents for 45 inches or wider.

AUTOMOBILE

No. 20, Pittsburgh, base	4.00c

FURNITURE

No. 24, Grade A, Pittsburgh	3.80c
No. 24, Grade B, Pittsburgh	3.60c

(Turn to the following page)

now standing at 24,719,182 tons, compared with 25,334,526 tons a year ago. Excepting 1926, August production was the best for that month in five years. At the end of the month 182 stacks, or three fewer than on July 31, were in blast.

Steel Cars to Replace Wooden Ones

Freight car builders are greatly encouraged by the edict of the American Railway association against the use of wooden equipment after Jan. 1, 1931. Because of the surplus of cars not all of the existing 300,000 wooden cars may be replaced, but it is expected that a large part will be. Considering that car orders have been averaging about 60,000 annually in recent years, several active years may be opened up for the car building industry. Preliminary estimates placed August awards at 677, compared with 582 in July and 1181 last August. Thus far in 1928 only 29,593 cars have been bought, against 45,641 a year ago. Chesapeake & Ohio has opened bids on its 45,500 tons of rails.

Confidence in the country's steel requirements is evidenced by lower lake steelworks which within the past week have increased their shipping instructions for Lake Superior iron ore this season by 500,000 tons. Larger producers in the Pittsburgh district are averaging 80 to 85 per cent. Chicago steelmaking operations are unchanged at about 80 per cent. Only twice before this year have 114 of the 127 independent sheet mills been active in the Mahoning valley; this compares with 105 units a week ago. One additional open-hearth furnace has been lighted at Youngstown. Tin plate mills in the Mahoning valley have given a little ground, both seasonally and because of crop damage by storms. Steel corporation units are at 76 per cent this week, a loss of one point, and the entire industry is at 74 per cent.

Higher Prices Temper Iron Buying

Not only were August sales the best of the year for many pig iron producers but shipments also were heavy enough to reduce stocks at the furnaces materially. With order books satisfactory, furnace interests are disposed to stand firmly on their recent price advances. One result has been to scale down buying somewhat. August sales of foundry and malleable iron at Chicago totaled from 250,000 to 300,000 tons, necessitating the blowing-in of two merchant stacks shortly. Pittsburgh district producers, after much quiet selling, are asking 25 to 50 cents more for most grades, and in some cases getting it. At Cleveland sales and shipments in August were the best of the year and last week's selling, totaling 46,000 tons, was good considering the holiday. Heavy sales were made in the East.

According to cable dispatches from London, British orders for iron and steel are small but aggregate well. French markets are quieter. IRON TRADE REVIEW composite of 14 leading iron and steel products is up 1 cent this week to $35.11. For three consecutive weeks this index has been rising moderately.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Sept. 5, 1928)	$35.11
Last week (Aug. 29, 1928)	35.10
One month ago (August, 1928)	34.96
Three months ago (June, 1928)	35.30
One year ago (September, 1927)	36.18
Ten years ago (September, 1918)	56.56
Fifteen years ago (September, 1913)	25.55

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED
SEE ALSO PRECEDING PAGE

HOOPS, BANDS, STRIPS

Hot strip, under 3-inch, Pitts. 2.05c to 2.20c
Hot strip, 3 to 6-inch, Pitts. 1.90c to 2.00c
Hot strip, 6 to 12-inch, Pitts. 1.80c to 1.90c
Hot rolled strip, 12 to 24-inch 16 gage and heavier, coils or cut lengths, 1.85c plate basis, or 2.00c blue annealed basis.
Hot strip, bands, under 3-in., Chicago 2.30c
Hot strip, bands, 3 to 6-in. Chi. 2.20c
Hot strip, bands, 6 to 12-in., Chi. 2.00c
Hot strip, 12 to 24 in., Chi..... 2.10c
blue annealed sheet basis.
Cold rolled strip, hard coils, 16 inches and wider by 0.100-inch and heavier, base Pitts., Cleve., (3 tons and over)..... 2.75c to 2.85c
Worcester, Mass. (3 tons and over) ..... 3.00c to 3.10c
Quantity extras: 5999 to 2000 pounds, 0.25c; 1999 to 1000 pounds, 0.65c.

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.75c

S.A.E. Series Number	Alloy differential	Net, 100 lb. bars
2000	0.25	$3.00
2100	0.55	3.30
2300	1.50	4.25
2500	2.25	5.00
3100	0.55	3.30
3200	1.35	4.10
3300	3.80	6.55
3400	3.20	5.95
4100 0.15-0.25 Mo.	0.50	3.25
4100 0.25-0.40 Mo.	0.70	3.45
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.80
5100 0.60-0.90 Cr.	0.35	3.10
5100 0.80-1.10 Cr.	0.45	3.20
5100 Chrome Spring	0.20	2.95
6100 Bars	1.20	3.95
6100 Spring Steel	0.95	3.70
Chrome Nickel Vanadium..	1.50	4.25
Carbon Vanadium	0.95	3.70
9250	0.25	3.00

TUBING

Boiler
Carload Discounts—Less-carloads 4 points Lower—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	42½
Charcoal iron, 3¼ to 4½-inch	9
Seamless hot rolled 3¼ to 3½-inch	56

Further discounts of six 5 per cents for 21,000 pounds or more on lap welded steel. On charcoal two 10's and one 2½ on 12,000 pounds or more.

COLD DRAWN SEAMLESS
F.o.b. mill in desirable quantities
Random length over 5 feet .....55 per cent
Selected lengths, 1 to 18 feet .....53 per cent

WIRE PRODUCTS

To Jobbers in Carloads
F.o.b. Cleveland and Pittsburgh base
Dealers 10 cents per 100 pounds extra

Bright plain wire, No. 9 gage..	2.40c
Annealed fence wire	2.55c
Galvanized wire, No. 9 gage....	3.00c
Barbed wire, painted	2.95c
Barbed wire, galvanized	3.20c
	Per 100 lbs.
Wire nails	$2.55
Galvanized nails, plus differ.	4.55
Polished staples	3.00
Galvanized staples	3.25
Coated nails, 100 lb. kegs, Sept. 1, 1926 extras apply....	2.55
Woven wire fencing (retailers) 12½ gage, 26-in. high, 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

CAST IRON WATER PIPE

Prices per net ton
Class B Pipe

Six-inch and over, Birming'm..	$34.00 to 35.00
Four-inch, Birmingham	38.00 to 39.50
Four-inch, Chicago	46.20 to 47.20
Six-inch to 24-inch, Chicago.....	42.20 to 43.20
Four-inch, New York	41.50 to 42.60
Six-inch and over, New York..	37.60 to 38.60
Standard fittings, Bir. base.....	$100.00

Six to 24-inch base; over 24-inch; plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.
Class A pipe is $4 higher than Class B.

IRON AND STEEL PIPE

Base Discounts Pittsburgh and Lorain, O., to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel*	62	50½
1 to 1½-inch butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less.
*To large jobbers these discounts are increased on black by 1 point and a supplementary discount of 5 per cent on galvanized by 1½ points with a supplementary 5 per cent.

CHAIN, PILING, CUT NAILS

Cut nails, c.l., f.o.b. mills.....	2.70c
Cut nails, l.c.l. f.o.b. mills.....	2.80c
Chain,, 1-in., proof coil, Pitts....	6.00c
Sheet piling base, Pittsburgh..	2.25c

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relaying rails, St. Louis.....	$24.00 to 31.00
Relay rails, Pitts. 60 to 90 lb...	$22.00to 27.00
Light rails, 25 to 45, mills.....	$36.00
Angle bars, Chicago base.....	2.75c
Spikes, railroad, Pittsburgh....	2.80c
Spikes, small railroad, ⅞-inch and smaller, Pitts.....	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand, jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.....	$43.00

BOLTS AND NUTS

Birmingham and Chicago
Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.
Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS
All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅜x6 and smaller take 10 per cent lower list.
Eagle list ..... 60 to 70 off

MACHINE BOLTS
All sizes, cut thread ..... 60 to 70 off
Rolled thread ⅜x6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off

Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.
Tire bolts .....60-5 off

Nuts
Semifinished .....60 to 70 off

HEXAGON CAP SCREWS
Milled .....80-10-10 off
Upset 1 in. diam. and smaller .....85-5 off

SQUARE HEAD SET SCREWS
Milled .....80-10 off
Upset 1 in. diam. and smaller.....80-10-10 off

RIVETS

Struct., c.l., Pitts.-Cleve.....	2.80c to 2.90c
Structural, c.l., Chicago	3.00c
**⅞-inch and smaller, Pitts.....	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

WASHERS

Wrought, c.l., Pitts. dist.....	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.....	$6.70 to 6.90 off
Lock: To dealers	85-5 off
Lock: To consumers	85 off

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per gross ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$32.00 to 33.00
Pittsburgh, bessemer	32.00 to 33.00
Youngstown	32.00
Cleveland	33.00
Philadelphia	37.30 to 38.30
Chicago	32.00 to 33.00
Forging, Chicago	38.00
Forging, Pittsburgh	38.00
Forging, Philadelphia	43.30

SHEET BARS

Pittsburgh	$32.00 to 33.00
Youngstown	33.00
Cleveland	32.50 to 33.00
Chicago	35.00

SLABS
Pitts., Young., and Cleve.....$32.00 to 33.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	45.00

SKELP
All grades, Pittsburgh ..... 1.85c to 1.90c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%....	$4.55
Mesabi bessemer, 51½%	4.40
Old range nonbessemer 51½%	4.40
Mesabi nonbessemer, 51½%.....	4.25

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%.....	8.00 to 8.50
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE
Cents per unit, alongside docks, Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese..	11.00
North African low phosphorus	10.00 to 11.00
Swedish foundry or basic, 65%—none offered	
Spanish and North African basic, 50 to 60 per cent	8.50 to 10.00
Newfoundland foundry, 55%....	8.50 to 9.00

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian (53-55 per cent)	38 to 40 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton....	$16.50 to 17.00
Washed gravel, imported duty paid, east. tidewater, net ton	15.50

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind....	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK
Per Net Ton
9 x 4½ x 2½ 65.00

MAGNESITE
Net Ton Chester, Pa., and Baltimore base
Dead-burned grain magnesite.... 40.00

CHROME BRICK
Net Ton Chester, Pa., and Baltimore base.
9 x 4½ x 2½ 45.00

Pig Iron

New Purchases More Conservative, as Higher Prices Hold—Heavy Sales and Shipments Give Sellers Dominating Position

AUGUST pig iron sales and shipments were the most satisfactory of any month so far this year for the majority of producers. They placed furnace interests in a splendid position, with stocks reduced, heavy orders on books for the remainder of the year, and they have firmly established higher price levels. The volume of new business in the past week moderated slightly, as many large consumers realized that they had "overstayed" the market. Inquiries for substantial tonnages, in some instances up to 6000 tons, failed to develop the former low prices. August was a record sales month for some of the furnaces in the Middle West. From 250,000 to 300,000 tons was placed on Chicago books, followed by the announcement that two more stacks are to be started.

PITTSBURGH, Sept. 4.—Sentiment in the pig iron market has improved considerably, with all sellers talking higher prices. Demand for foundry iron has broadened, and inquiry is slightly more active. A gradual upturn in the melt is noted in this district. Some inquiries are out involving up to 1000 tons. Sellers are taking a firmer attitude at $17, valley, for No. 2 foundry, while $16.50 has practically disappeared. Some sales are reported at $16.75. Specifications are satisfactory, some requests being received for rush shipment. Stocks of a number of melters are low. Bessemer iron is stronger, several sales being made at $17.25, valley, and some makers name $17.50, valley, as their minimum. Large inquiries for basic are lacking, following the recent spurt in activity. The price situation is stronger, with some sales at $16.25 and $16.50. Malleable also has stiffened, transactions being noted at $17 and $17.50, valley. The average sales price of basic iron in August was $16, and the average for bessemer was $17, the same as in July, according to W. P. Snyder & Co.

Boston, Sept. 4.—Sales of pig iron in the past week totaled 8000 tons. The total for August was 30,600 tons. Of the sales in the past week Mystic Iron Works booked 5000 tons. Prices are firmer. While it is claimed that Buffalo iron can be bought as low as $16, practically all Buffalo iron now is on a $17 furnace basis, with No. 2X at $17.50 and No. 1X at $18.50.

New York, Sept. 4.—Demand for pig iron continues brisk. One of the largest inquiries is that of Central Foundry Co., which may buy 6000 tons for its various plants. Burnham Boiler Corp. has out an inquiry for about 1000 tons for its various plants, but is expected to buy more. Crane Co., Bridgeport, Conn., has closed for around 2000 tons of foundry iron. Richmond Radiator Co. has placed a tonnage for its South Norwalk, Conn., plant. While $16, base, Buffalo, has not disappeared in this territory, most Buffalo producers are firm on the basis of $16.50 for this district, although the prevailing price in the immediate Buffalo district is higher. Some eastern Pennsylvania producers now quote $20, base, furnace, on foundry iron, an advance of 50 cents. A large part of the foundry iron requirements continue to be shipped into this district by barge from Buffalo and most of it is going direct to consuming plants. An unusual sale involves a moderate tonnage of high phosphorus iron from France. The iron contains about 1.50 per cent phosphorus and the consumer paid a premium for it. Small sales of English low phosphorus iron recently have been made at $22.50, duty paid, tidewater.

Buffalo, Sept. 4.—Buffalo furnaces have advanced pig iron prices, placing foundry for eastern delivery on a minimum $17 base, and for local delivery at $17.50. Malleable is quoted 50 cents higher in each case. Silicon differentials are sought on all business. Heavy buying preceded the last advance, estimates of sales of district furnaces during the last two weeks of August ranging from 50,000 to 100,000 tons. Operations will be increased next month with the renewal of iron production at the Tonawanda furnace and lighting of an additional merchant stack.

Cleveland, Sept. 4.—Pig iron demand continues active, though not as large as prior to the recent price advance. Some of the shrewdest buyers were caught, without protection, and just now are hesitating about placing orders. Inquiries here total 10,000 to 15,000 tons, including one of 6000 tons. The aggregate of sales in the past week booked by furnace interests with headquarters in Cleveland is 46.000 tons, against 73,000 tons in the week preceding. Cleveland producers have established their price for outside delivery at $17, base, furnace, with 50-cent silicon differentials, while other lake furnace prices range from $17.50 to $18, for delivery in western Ohio, Indiana and Michigan. The Cleveland furnaces have not yet raised their price from $18, base, delivered in the local switching area. The minimum price in the valley is reported as $16.75, which with $1.76 freight to Cleveland would bring the delivered price to $18.01. Despite this situation, coupled with the fact most valley producers have a minimum of $17, base, Cleveland sellers say they want to be sure that all weak spots in the valley have disappeared before advancing their local price. August sales and shipments were the best of the year for most producers.

Cincinnati, Sept. 4.—Pig iron inquiries are larger and more numerous. One from central Indiana is for 3000 tons of northern iron. Another from northern Indiana calls for 1000 tons. The advance in prices encourages local dealers.

Detroit, Sept. 4.—Pig iron here reflects the firmer price and heavier demand tendency characterizing other markets. Producers are quoting $18, base, furnace imposing the full silicon extras. For local delivery $18.50, delivered, has been obtained on sev-

(*Concluded on Page* 605)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$17.00 to $17.50
Bessemer, del., Pittsburgh	18.76 to 19.26
Basic, valley furnace	16.00 to 16.50
Basic, del., Pittsburgh	17.76 to 18.26
Basic, Buffalo furnace	17.00
Basic, del., eastern Pa.	18.75 to 19.25
Malleable, valley furnace	17.00 to 17.25
Malleable, del. Pittsburgh	18.76 to 19.01
Malleable, del. Cleveland	18.00
Malleable, Chicago furnace	18.00
Malleable, Buffalo furnace	17.50 to 18.00
Malleable, del. eastern Pa.	20.50 to 21.00
No. 1 foundry, Chicago furnace	18.50
No. 1X, eastern del., Phila.	21.26
No. 1X, Buffalo furnace	18.50 to 19.00
No. 2 foundry, valley furnace	16.75 to 17.00
*No. 2 foundry, del., Pittsburgh	18.51 to 18.76
No. 2 plain, Buffalo furnace	17.00 to 17.50
No. 2 foundry, Chicago furnace	18.00
No. 2 foundry, Granite City	19.00 to 19.50
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.00
No. 2 plain, del., Phila.	20.26
No. 2 plain, Virginia furnace	20.00
No. 2 plain, N. J., tidewater	19.01 to 19.51
No. 2 Alabama, Birmingham	16.25
No. 2 Alabama, del., Cincinnati	19.94
No. 2 Tenn., Birmingham base	16.25
No. 2 Tenn., del., Cincinnati	19.94
No. 2 Alabama, del. Chicago	22.26
No. 2 Ala., del. Chicago, river-rail	22.26
No. 2 Alabama, del. Cleveland	22.51
No. 2 Alabama, del. St. Louis	20.67
No. 2X, east, N. J., tidewater	19.51 to 20.01
No. 2X, eastern, del. Phila.	20.76
No. 2X, foundry, Buffalo, furnace	17.50 to 18.00
No. 2X, eastern, del. Boston	20.91 to 21.41
No. 2X, Virginia furnace	20.00 to 20.50
Gray forge, val., del., Pittsburgh	18.01 to 18.26
Low phos., standard, valley	26.50
Low phos., standard, Phila.	24.26 to 24.76
Low phos. copper bearing fur.	23.00 to 23.50
Charcoal, Birmingham	28.00
Charcoal, Superior, del., Chicago	27.04

CANADIAN PRICES

No. 2 foundry, del. Toronto	23.10 to 23.60
No. 2 foundry, del. Montreal	24.50 to 25.00
Malleable, del. Toronto	23.10 to 23.60
Malleable, del. Montreal	24.50 to 25.00
Basic, del. Montreal	23.50 to 24.00

Silvery iron, Jackson county (Ohio) furnace in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50; 16—$43.

The Market Section

Coke

Shipments Improve as Melters Seek Larger Reserves—Prices on Steady Basis

SEASONAL influences, as well as the evident increase in the melt of pig iron, are tending to improve demand for foundry and furnace coke. Melters' stocks are low and specifications generally show their tendency to build up reserves. Heavy shipments are reported in some districts. By-product coke prices have been generally reaffirmed for September.

Pittsburgh, Sept. 4.—Beehive coke prices are steady, with $2.75 generally the minimum for the furnace grade. Better grades of foundry fuel command from $3.75 upward, inferior coke selling at less. Production of coke in the Connellsville district in the week ending Aug. 25 was 31,231 tons against 29,640 tons in the week preceding, according to the *Connellsville Courier.*

Boston, Sept. 4.—There was no change in the price of coke the first of the month, despite the fact that business has been exceptionally good through the latter part of August. Shipments in August were the best for that month in several years, and were the best of any month so far this year.

New York, Sept. 4.—Demand for foundry coke shows further improvement in this district. Prices are unchanged, but firmness particularly is noted in the current market for beehive furnace coke, prices ranging from $2.65 to $3, Connellsville.

Detroit, Sept. 4.—Domestic by-product coke has been advanced 50 cents per ton in this district but foundry coke continues unchanged at $8, ovens. Foundry coke is moving exceedingly well, considering the season, and neither consumers nor producers have appreciable stock.

Cincinnati, Sept. 4.—Announcement by Indiana coke producers that September prices will follow the August schedule indicates that for the present those producers will pay little attention to encroachment of low price foundry coke from southern by-product makers. Foundry coke is moving in better volume on specifications, and some small orders are being booked. Furnace coke demand is beginning to assume importance.

St. Louis, Sept. 4.—Slight improvement, mainly seasonal, is noted in the coke market. Specifications for foundry coke are fair. Prices of all metallurgical grades are unchanged.

Birmingham, Ala., Sept. 4.—Improvement is noted in shipments of coke. Foundry fuel continues $5, base, Birmingham.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75 to 3.00
Connellsville foundry	3.75 to 4.50
New River foundry	6.50 to 7.00
New River furnace	6.50
Wise county foundry	4.50 to 5.25
Wise county furnace	3.75 to 4.25
By-Product Foundry	
Newark, N. J., del.	9.00 to 9.40
Chicago, ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham	5.00
Indianapolis, del.	8.25
Ashland, Ky.	7.00
Portsmouth, O.	7.00
Detroit, ovens	8.50
Buffalo, ovens	9.00

Produce Less Castings

Washington, Sept. 4.—Production of malleable castings in July declined from June, according to department of commerce figures announced briefly in Iron Trade Review last week. Following are comparisons by months:

	Total tons produced	Per cent of capacity	Total tons booked	†Monthly capacity
1926				
Total	715,384	54.7	607,949	1,307,889
1927				
July	48,202	43.9	45,782	104,287
Total (7 mos.)	399,298	53.9	360,398	740,662
August	51,394	48.6	42,515	105,717
September	45,210	43.3	37,912	104,401
October	46,765	46.	39,494	101,606
November	40,845	40.5	34,624	100,778
December	47,876	47.6	49,215	100,685
Total (year)	631,388	50.4	564,158	1,253,849
1928				
January	54,818	59.6	53,153	92,015
February	59,045	63.8	55,452	92,498
March	63,322	69.6	60,697	91,043
April	56,880	62.5	53,099	91,019
May	61,458	67.3	54,429	91,296
*June	60,779	67.0	51,388	90,746
July	58,384	59.9	53,882	90,759
Total (7 mos.)	410,686	64.2	382,110	639,376

†Capacity during 1927 has been based on following formula: "Total number of units of molding floor space times average production per molder per day per unit of floor space, times number of actual working days per month." Beginning January, 1928: "Average monthly production for the best six consecutive months since Jan. 1, 1919, is to be taken as a practical monthly capacity."

*Revised.

Honor W. B. Thompson

Boston, Sept. 4.—William Boise Thompson, mining engineer and banker, New York, was elected an honorary member of the American Institute of Mining and Metallurgical Engineers at its fall meeting here. Many valuable papers were presented at the meeting, at which 160 were registered. The geophysical exhibit was one of the most comprehensive in the history of the organization.

Implement Exports Set Record in July

Exports of agricultural implements from the United States in July reached a total never before equaled, according to the agricultural implements division, department of commerce, Washington. Shipments amounted to $13,996,996. This was more than $3,000,000 greater than the exports in June, 1928, and more than $4,000,000 greater than July, 1927.

The outstanding feature of the month's exports is the extremely large shipments to Canada, which reached a value of $5,958,603, making a total of $29,377,201 worth of American implements which have gone into Canada in the first seven months of the current year. The bulk of the Canadian purchases consisted of tractors and harvesting equipment. More than 1800 tractors were shipped into Canada during the month, of which 1422 were wheel tractors of from 15 to 32 horsepower. Other large items among the Canadian purchases were 3945 harvesters and binders, 914 combines and 552 threshers.

Coal Output Below 1927

Production of bituminous coal in the week ended Aug. 25 totaled 9,274,000 net tons, compared with 8,959,000 tons in the week preceding and 9,742,000 tons in the corresponding week of 1927, according to the federal bureau of mines. Thus far in 1928 output of soft coal has totaled 303,327,000 tons, against 343,555,000 tons in the same period of 1927.

Highland Is Enlarging

Highland Iron & Steel Co. will construct another unit to its plant at Terre Haute, Ind., giving it a third mill, which will increase the factory 25 per cent. About 100 men will be added to the payroll. The unit will be in operation by Nov. 1.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent domestic furnace	33.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	96.00
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

*These prices contract; spot $5 higher.

Scrap

Price Increases General as Shortages Develop on Demand—Market Gains Strength

CONSUMERS of iron and steel scrap are entering the market for added tonnages as their operations increase and some shortages are developing, giving higher prices. Not only are users paying more but dealers with unfilled contracts are being queezed by the advance. Water shipments are expanding.

Chicago, Sept. 4.—Shortage of angle bars, malleable and short rails continues to grow more acute. Short rails under 3 feet are now bringing $16.50 to $17, and under 2 feet as high as $17.25. Steel angle bars are bringing $15.50 to $16. Opening of bids by the Chicago & North Western, and the Chicago, Burlington & Quincy developed quotations on steel angle bars of $16.60, delivered. Frogs, switches and guards are bringing up to $14.50 to $15.

In covering contracts placed by mills early this month for heavy melting steel dealers here continue to take losses of 25 cents to 75 cents a ton. Railroad bids developed quotations of $13.60 to $14, delivered, for heavy melting steel. The nominal quotation on this material is $12.75 to $13.25, the latter being the highest current price paid by steel plants. Mills appear covered for present requirements and in view of the present condition of the market they are not buying heavy melting steel.

Boston, Sept. 4.—Practically all scrap shipped from dealers the past week went to Pittsburgh mills, but

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except Detroit where dealers' buying prices are shown

Steel Works Scrap

HEAVY MELTING STEEL	
Birmingham	$10.25 to 10.75
Boston, dealers	9.50 to 10.00
Buffalo, No. 1	13.75 to 15.25
Buffalo, No. 2	12.25 to 12.75
Chicago	12.75 to 13.25
Cincinnati, deal.	11.50 to 12.00
Cleveland, No. 1	13.25 to 13.75
Cleveland, No. 2	12.25 to 12.75
Detroit, No. 1	11.50 to 12.00
Eastern Pa.	13.00
Eastern Pa., No. 2	11.00 to 11.50
Bethlehem deliv.	13.00
N. Y., deal., R. R.	9.25 to 9.85
N. Y., deal., yd.	9.85 to 10.25
Pittsburgh, No. 1	15.50 to 16.50
St. Louis, No. 1	12.00 to 12.50
St. Louis, No. 2	11.00 to 11.25
Valleys, No. 1	14.00 to 14.25
COMPRESSED SHEETS	
Buffalo	12.25 to 12.75
Chicago	11.50 to 12.00
Cleveland	12.25 to 12.75
Detroit	11.50 to 12.00
Pittsburgh	15.50 to 16.00
Valleys	14.00 to 14.50
E. Pa. new mat.	11.50 to 12.00
BUNDLED SHEETS	
Buffalo	8.25 to 8.75
Cincinnati, deal.	9.50 to 10.00
Cleveland	11.50 to 12.00
Eastern Pa.	10.50 to 11.00
Pittsburgh	13.75 to 14.25
St. Louis	7.75 to 8.25
SHEET CLIPPINGS, LOOSE	
Chicago	7.50 to 8.00
Cincinnati	8.75 to 9.25
Detroit	7.50 to 8.00
St. Louis	7.75 to 8.25
STEEL RAILS, SHORT	
Birmingham	10.50 to 11.00
Boston	8.25 to 8.75
Buffalo	16.00 to 16.50
Chicago	16.50 to 17.00
Cincinnati, deal.	15.75 to 16.25
Detroit	14.50 to 15.00
St. Louis	15.25 to 15.75
STOVE PLATE	
Birmingham	12.00 to 12.50
Boston, consumers	10.00
Buffalo	13.75 to 14.25
Chicago, net	11.50 to 12.00
Cinn., deal., net	8.00 to 8.50
Cleveland	12.00 to 12.50
Detroit, net	10.75 to 11.25
Eastern Pa.	11.50 to 12.00
N. Y., deal., mill	7.75 to 8.25
Pittsburgh	11.50 to 12.00
St. Louis	11.50 to 12.00
SHOVELING STEEL	
Chicago	12.75 to 13.25
Pittsburgh	11.00 to 11.50
St. Louis	11.00 to 11.25
KNUCKLES, COUPLERS SPRINGS	
Buffalo	15.75 to 16.25
Chicago	14.50 to 15.00
Eastern Pa.	15.50 to 16.00
Pittsburgh	16.50 to 17.00
St. Louis	12.25 to 12.75
LOW PHOSPHORUS	
Buffalo, billet and bloom crops	16.25 to 16.75
Cincinnati, deal.	12.75 to 13.25
Eastern Pa.	17.50 to 18.50
Pitts. billet and bloom crops	20.00 to 20.50
Cleve. billet and bloom crops	17.00 to 17.50
FROGS, SWITCHES, GUARDS	
Chicago	14.50 to 15.00
St. Louis	12.50 to 13.00
ANGLE BARS—STEEL	
Buffalo	14.00 to 14.50
Chicago	15.50 to 16.00
St. Louis	12.50 to 13.00

Iron Mill Scrap

RAILROAD WROUGHT	
Birmingham	9.50 to 10.00
Boston, dealers	8.50 to 9.00
Buffalo, No. 1	11.00 to 11.50
Buffalo, No. 2	14.00 to 14.50
Chicago, No. 1	12.88 to 13.44
Chicago, No. 2	12.75 to 13.25
Cinn., No. 2	11.50 to 12.00
Eastern Pa.	14.50
N. Y., No. 1 deal.	11.00 to 11.50
Pittsburgh, No. 1	12.00 to 12.50
Pittsburgh, No. 2	15.50 to 16.00
St. Louis, No. 1	9.50 to 10.00
St. Louis, No. 2	12.00 to 12.50
WROUGHT PIPE	
Boston, dealers	9.00 to 9.50
Eastern Pa.	13.00
Buffalo	12.00 to 12.50
New York, deal.	9.25 to 10.25
YARD WROUGHT	
Boston	8.00 to 8.50
Eastern Pa.	14.00 to 14.50
BUSHELING	
Buffalo	12.25 to 12.75
Chicago, No. 1	11.00 to 11.50
Chicago, No. 2	8.50 to 9.00
Cinn., No. 1 deal.	10.50 to 11.00
Cinn., No. 2	5.50 to 6.00
Cleveland, No. 2	9.25 to 9.50
Detroit, No. 1	10.00 to 10.25
St. Louis, No. 1	9.00 to 9.50
Detroit, mixed	7.25 to 7.50
MACHINE SHOP TURNINGS	
Birmingham	8.00 to 9.00
Boston	6.00 to 6.50
Buffalo	7.00 to 7.50
Chicago	7.00 to 7.50
Cincinnati, deal.	8.00 to 8.50
Cleveland	7.75 to 8.25
Detroit	7.00 to 7.25
Eastern Pa.	10.50
New York deal.	6.75 to 7.25
Pittsburgh	10.00 to 10.50
St. Louis	7.00 to 7.50
MIXED BORINGS, TURNINGS For blast furnace use	
Boston, dealers	5.50 to 6.00
Buffalo	9.50 to 10.00
Cincinnati, deal.	8.00 to 8.50
Cleveland	9.25 to 9.50
Detroit	8.00 to 8.25
Eastern Pa.	9.50 to 10.00
New York, deal.	6.25 to 6.75
Pittsburgh	11.00 to 11.50
CAST IRON BORINGS	
Birmingham, chem.	13.00 to 13.50
Birmingham, plain	8.00 to 9.00
Boston, chem.	9.50 to 10.00
Boston, dealers	5.50 to 6.00
Buffalo	9.50 to 10.00
Chicago	9.75 to 10.00
Cincinnati, deal.	8.00 to 8.50
Cleveland	9.25 to 9.75
Detroit	8.25 to 8.50
Eastern Pa.	10.50 to 11.00
Eastern Pa., chem.	14.50 to 15.00
New York, deal.	6.75 to 7.25
Pittsburgh	11.00 to 11.50
St. Louis	8.25 to 8.75
Valleys	13.50
PIPES AND FLUES	
Chicago, net	8.50 to 9.00
Cincinnati, deal.	7.50 to 8.00
St. Louis	9.00 to 9.50
RAILROAD GRATE BARS	
Buffalo	11.25 to 11.75
Chicago, net	12.60 to 13.16
Cincinnati	9.00 to 9.50
Eastern Pa.	11.50 to 12.00
New York, deal.	8.00 to 8.50
St. Louis	11.00 to 11.50
FORGE FLASHINGS	
Boston, dealers	7.50 to 8.00
Buffalo	11.50 to 12.00
Chicago	9.00 to 9.50
Cleve., over 10 in.	11.50 to 12.00
Detroit	9.50 to 10.00
Pittsburgh	12.00 to 12.50
FORGE SCRAP	
Boston, deal	5.50 to 6.00
Chicago	15.50 to 16.00
Eastern Pa.	11.00 to 11.50
ARCH BARS AND TRANSOMS	
Chicago, net	20.00 to 20.50
St. Louis	18.25 to 18.75

Iron, Steel Works Scrap

AXLE TURNINGS	
Boston, deal	6.75 to 7.00
Buffalo	11.50 to 12.00
Chicago	9.75 to 10.25
Cleveland	12.00 to 12.25
Eastern Pa.	11.00 to 11.50
Pittsburgh	13.50 to 14.00
St. Louis	9.50 to 10.00
STEEL CAR AXLES	
Birmingham	16.00 to 17.00
Boston, ship point	14.00 to 14.25
Buffalo	16.50 to 17.00
Chicago	17.65 to 18.20
Cleveland	16.00 to 16.50
Eastern Pa.	19.00 to 20.00
Pittsburgh	18.00 to 18.50
St. Louis	18.00 to 18.50
SHAFTING	
Boston, ship. point	12.00 to 12.50
Chicago	17.35 to 17.90
Eastern Pa.	16.50 to 17.00
New York, deal.	13.50 to 14.00
St. Louis	16.50 to 17.00

Iron Foundry Scrap

CAR WHEELS	
Birmingham, iron	12.00 to 12.50
Boston, con.	14.00 to 14.50
Buffalo, iron	12.25 to 12.75
Buffalo, steel	15.50 to 16.00
Chicago, iron	13.00 to 13.50
Chi., rolled steel	16.00 to 16.50
Cincinnati	11.50 to 12.00
Eastern Pa., cast	15.50 to 16.00
Eastern Pa. rolled	14.75 to 15.25
N. Y., iron, deal.	11.50 to 12.00
Pittsburgh, iron	15.00 to 15.50
Pittsburgh, steel	16.00 to 16.50
St. Louis, iron	13.00 to 13.50
St. Louis steel	13.00 to 13.50
NO. 1 CAST SCRAP	
Birmingham, cup.	13.00 to 13.50
Buffalo	14.25 to 14.75
Boston, textile	13.25 to 13.50
Buffalo	14.25 to 14.75
Chicago, mach.	16.24 to 16.80
Chicago, railroad	14.55 to 15 10
Chicago, agri.	14.30 to 14.85
Cincinnati, mach. cupolas, net deal.	14.50 to 15.00
Cleveland, cupola	15.50 to 16.50
Detroit, net	12.25 to 12.75
Eastern Pa. cupola	15.50 to 16.00
N. Y., cup., deal.	13.00 to 13.50
Pittsburgh, cupola	14.25 to 14.75
San Fran., del.	20 00 to 21.00
Seattle	14.50 to 15.00
St. Louis	13.00 to 13.50
Valleys	16.50 to 17.00
HEAVY CAST	
Boston	10.50 to 11.00
Buffalo, breakable	11.50 to 12.00
Cleve., breakable	12.25 to 12.50
Detroit, auto., net	17.00 to 18.00
Eastern Pa.	15.50
New York, deal.	12.00 to 12.50
Pittsburgh	12.25 to 12.75
MALLEABLE	
Boston, railroad	13.50 to 14.50
Buffalo	14.75 to 15.25
Chicago, agri.	12.25 to 12.75
Chicago, railroad	13.00 to 13.50
Cinn., R. R., deal.	12.00 to 12.50
Cinn., agri., deal.	10.50 to 11.00
Cleveland, agri.	15.00 to 15.50
Cleveland, rail.	15.00 to 16.00
Detroit, auto	14.50 to 15.00
Pittsburgh, rail.	14.00 to 14.25
St. Louis, agri.	11.50 to 12.00
St. Louis, rail.	11.50 to 12.00

Miscellaneous Scrap

RAILS FOR ROLLING 5 feet and over	
Birmingham	10.50 to 11.00
Boston, dealers	9.50 to 10.00
Buffalo	13.50 to 14.00
Chicago	15.50 to 16.00
Eastern Pa.	14.50 to 15.00
New York	10.50 to 11.00
Pittsburgh district	16.00 to 16.50
St. Louis	13.00 to 13.50
LOCOMOTIVE TIRES	
Chicago, No. 1	13.50 to 14 00
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	11.75 to 12.25
LOW PHOS. PUNCHINGS	
Chicago	14.50 to 15.00
Pittsburgh	16.00 to 16.50

this was on a lighter scale than in the preceding couple of weeks. Machinery cast, which had been active, met a falling off for the time being, which resulted from foundries being more interested in pig iron for the moment. Prices ruled firm with heavy melting steel showing a betterment.

New York, Sept. 4.—Increases of 25 cents to $1 on many grades of scrap mark one of the most general advances in the local dealers' market in considerable time. Due to activity of Pittsburgh dealers in this district, prices on No. 1 steel have reached $10.25, New York, with some reports of still higher prices, as the margin over the top price of $9.85, New York, for eastern Pennsylvania is said not to be adequate to attract sufficient tonnage to Pittsburgh. Contributing to higher prices in other grades are better offerings at Harrisburg, Pa., and Phoenixville, Pa., and certain other points. The Alan Wood Iron & Steel Co., in the market in some time, has closed on a substantial tonnage of turnings and yard steel for Swedeland and Conshohocken, Pa., with local dealers paying $10.50, delivered, for turnings and $11.50 for yard steel.

Buffalo, Sept. 4.—Dealers are holding scrap in the belief that the upward turn in prices will continue. Deliveries of heavy melting steel are being made at $13.75 to $15, depending upon the consumer and date of purchase. Advances are noted in a number of specialties following actual sales. Turnings and borings continue dull in an improving market.

Pittsburgh, Sept. 4.—Strength is holding in iron and steel scrap, although activity consists largely of attempts of dealers to cover on previous sales. The short interest still is fairly large, and absence of substantial offerings makes the position difficult. Shipments to mills are well maintained. Dealers are not active in soliciting business owing to the difficulty in obtaining material. Sales of heavy melting steel have been made at $16.50 and the trade is looking for still higher prices following closing of railroad lists soon. Sales of steel specialties have been made at $16.75.

Cincinnati, Sept. 4.—Prices, advanced a few days ago on revival of demand for foundry and mill uses, have held well and dealers are looking for another advance by the middle of the month. Movement is not yet strong, but small orders are being received by all dealers at the new prices.

Birmingham, Ala., Sept. 4.—Still better feeling is noted in the old material market with dealers not anxious to take on contracts for long delivery on tonnages.

St. Louis, Sept. 4.—While not featured by great buying activity, the market for iron and steel scrap is strong. Dealers are paying good prices, higher than in a number of months, and railroads are receiving more encouraging bids and find more competition for their offerings.

Detroit, Sept. 4.—Iron and steel scrap market is more active than in months. With offerings somewhat lighter, consumptive demands holding their own if not broadening, and many dealers "short," prices have been soaring. The effect of consumers taking large railroad lists at Pittsburgh recently has been marked. Recent heavy shipments to Canada also have contributed to a genuine shortage. Heavy melting steel and compressed sheets are conservatively quoted at $11.50 to $12. Turnings are up almost $1 in the past week, to $7 to $7.25. Water shipments to Lake Erie ports continue heavy, and accumulations as old as three years are being moved. The trade sees higher prices in prospect before the present movement subsides.

Toronto, Ont., Sept. 4.—Additional strength shown in pig iron in Canada is reflected in a stronger demand for iron and steel scrap. Scrap sales for the week reached a higher total than for any former week this summer. Hamilton consumers are taking contract delivery on heavy melting steel and turnings and new orders are also appearing from this quarter. Machinery cast is selling more freely to consumers throughout Ontario and in the Montreal market.

Philadelphia, Sept. 4.—Dealers furnish most activity in the iron and steel scrap market and are most affected by recent advances. They sold heavily at recent prices. Consumers are amply protected as a result and are not buying. Dealers short of the market are paying high prices for material to ship and are taking losses. No further price changes have been made this week.

Cleveland, Sept. 4.—Prices of iron and steel scrap are stronger on sentiment and in the absence of buying are potentially higher. Consumers have sufficient on contract and are taking shipments freely as operations increase. Dealers furnish practically all current buying for contract deliveries.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	5.00
Turnings	5.00
Heavy melting steel	7.00

TORONTO

Steel axles	13.50 to 14.00
Iron axles	15.50 to 16.00
Heavy melting steel	8.00 to 8.50
Turnings	6.50 to 7.00
No. 1 mach. cast (net)	14.50 to 15.00
Malleable, (net)	12.50 to 13.00
Stove plate (net)	8.50 to 9.00

Semifinished

Specifications Continue at Heavy Rate—Some Mills Reaffirming Prices for Fourth Quarter

SHIPMENTS of semifinished steel in August were considerably larger than those of July, and also exceeded the tonnage in August of last year. Mills report a steady and heavy flow of specifications, especially for sheet bars, billets and slabs. Pittsburgh district producers continue to quote $33 on all three, and some are naming these prices for fourth quarter delivery.

SEMIFINISHED STEEL PRICES, PAGE 590

Pittsburgh, Sept. 4.—Semifinished steel specifications are in harmony with active finishing operations. Shipments last month generally were larger than in July. Sellers here quote $33 on 4 x 4-inch rerolling billets, slabs and sheet bars. This figure also has been named by some on sheet bars for fourth quarter. Wire rods are firm at $42, base, for current business, with the same price quoted for fourth quarter. Forging billets are steady at $38.

Cleveland, Sept. 4.—Specifications for semifinished steel continue to increase, and backlogs are the largest in several months. The leading local merchant producer continues to operate at 100 per cent. Prices are steady.

Chicago, Sept. 4.—Forging billets are the leaders among semifinished mill products. Forge shops have been handicapped somewhat by the heat during the past month. Recent sales of small lots indicate a market level of $38 a ton, Chicago. Normal demand is reported for rerolling billets and for sheet bars. Rerolling billet sales are being made at $33. Sheet bars are $35.

For New Jersey Canal

Abandonment of the old Morris canal in New Jersey, which is to be completed within a year, will release nearly a million dollars for purchase of a right-of-way for the long agitated New Jersey ship canal between Bordontown on the Delaware river and Morgan on Raritan bay. This ship canal will afford a great reduction in the water distance between New York harbor and Philadelphia. Among others who have recommended this ship canal is Walter Wood, of R. D. Wood & Co., of Philadelphia, who has contended that a canal across New Jersey would greatly reduce the cost of pig iron delivered at that company's plant at Florence, N. J.

Nickel in scrap is never lost; it is fully recovered on remelting.

Bars

Better Specifications Appear and Deliveries Are Deferred—Prices Show Added Strength

SOFT steel bars continue the most active finished steel item and in some centers specifications in August have been heavier than July. Deliveries are considerably deferred as buying increases. Fourth quarter prices are expected to show an advance and current prices are steady at the prevailing level, 1.90c, Pittsburgh. On fourth quarter business 2.00c, Pittsburgh, is being quoted.

BAR PRICES, PAGE 589

Chicago, Sept. 4.—Soft steel bars continue to lead practically all other finished steel products. Schedules have been advanced to slightly better than 80 per cent. Backlogs continue to grow and shipments are ranging from two or three weeks to five weeks.

A host of small orders is contributing to this total. No cessation is noted in demand from automotive, agricultural implement, and road building equipment industries. The 2.00c, Chicago, price is generally accepted by buyers.

New York, Sept. 4.—Brisk specifications on current contracts and an active interest in fourth quarter prices are reflected in the steel bar market. Mills generally are quoting 2.00c, base, Pittsburgh, on the general run of business for fourth quarter. The disposition of mills is to allow preferentials under this price to few consumers.

Philadelphia, Sept. 4.—Steel bar specifications continue good. August showed improvement over July and the previous August. Indications are that contracts calling for specification of third quarter tonnage by Sept. 10 will be enforced while absence of this provision will allow specification to the end of the month. The generally quoted fourth quarter price is 2.00c, Pittsburgh, although it is expected 1.90c will be the price to a limited number of large consumers.

Pittsburgh, Sept. 4.—Activity in soft steel bars continues surprisingly good, specifications during August generally equalling or exceeding those of July. Cold bar finishers still are specifying in good volume. Deliveries are extended on certain sizes as far as three weeks. The price continues firm, with sellers still insistent that third quarter specifications be received by Sept. 10. Spot business is being placed at 1.90c, Pittsburgh, with contract tonnage moving at 1.85c. Interest in fourth quarter requirements so far is light.

Refined iron bars are more active and are generally quoted at 2.75c to 4.25c, Pittsburgh.

Cleveland, Sept. 4.—Soft steel bar demands in the past week were sufficient to put August well ahead of July and August, 1927. This demand arose from a diversified source of consumers and appears to be entirely for current requirements. So far as can be discerned, no important consumers have built up stocks in anticipation of higher prices, but the 1.90c, Pittsburgh, price is more widespread. Deliveries are slightly deferred but not sufficiently to interfere seriously with consumption.

Detroit, Sept. 4.—Although 1.85c, Pittsburgh, has not entirely disappeared on attractive business, most producers of bars are quoting and getting 1.90c on average business. Thus far no maker has actively quoted on fourth quarter business. It is the general expectation of producers that they will be getting $2 per ton more for the fourth quarter than they did for the third. Consumption of bars has been practically record breaking for the season. September shipments promise to equal those of August.

High Costs Hurt British Empire Steel Corp.

Toronto, Ont., Sept. 4.—The financial report of the British Empire Steel Corp. for the year ending Dec. 31, 1927, is the first statement that has appeared since the new interests have acquired control, and covers a period before their advent. Operating profits amounted to $5,513,761, compared with $4,424,118 for 1926, and deductions for depreciation, interest, etc., left net profits at $2,135,731, compared with $1,138,468. The surplus for the year was $2,135,401 and previous deficits were $4,599,550, leaving a net deficit of $2,464,149.

President McNaught in his letter to the shareholders states that "While it is too early to forecast the results of the operations of the current year it is only fair to the shareholders to intimate that your directors are disappointed in the result so far obtained, which have been adversely affected by the increased operating costs."

Plates

Market More Active in East—More Barge Work Developing at Pittsburgh—Chicago Quiet

EASTERN mills report considerable improvement in plate demand, some makers being unable to take all the spot business offered. Most of them are prepared to accept specifications at third quarter prices right up to the close of September. There is a tendency to cut down the list of preferential-price customers. Additional barge work is appearing at Pittsburgh.

PLATE PRICES, PAGE 589

Pittsburgh, Sept. 4.—Plate specifications hold to the steady rate that prevailed throughout August. Considerable interest still is centered in barge work, a number of additional jobs being scheduled to follow the 93 recently awarded by the the Mississippi river commission. Bids are expected to be asked soon for four mat barges by the same interest. Mills here continue to quote 1.90c, Pittsburgh, on new business, with current specifications applied on lower price contracts.

New York, Sept. 4.—In some instances recently eastern plate mills have been so rushed on orders for universal plates they have been unable to take additional business for prompt shipment. However, there is no scarcity. Tank plate orders placed by oil companies aggregate several thousand tons. There is no indication that Sept. 10 will be regarded by many of the mills as the final date for specifying against third quarter plate contracts. Most makers appear prepared to accept third quarter plate specifications right up to the end of September. The mills expect to charge about $2 a ton more in the fourth quarter. The general idea is that 2.15c, base, Coatesville, equivalent to 2.32½c delivered, New York, will be the price on ordinary business during the fourth quarter. It is expected that in the fourth quarter preferential prices will be allowed to few consumers, aside from railroads, large fabricators, ship builders and some important jobbers. It is expected that railroads which have their headquarters in this territory will issue inquiries some time during the next two weeks for fourth quarter steel requirements. A feature of the recent buying in plates has been an unusually good demand for tonnage for ship repairs.

Cleveland, Sept. 4.—Steel plate demand lags in contrast with that for bars and small structural shapes. A few protections now out will be car-

ried until Sept. 30, but otherwise plate mills have little forward business in sight. Plates are 1.90c, Pittsburgh. Makers are unanimous in stating that $2 more will be asked beginning next week.

Philadelphia, Sept. 4.—Plate mills continue to receive a good volume of September delivery, and nothing definite has been determined for fourth quarter.

Chicago, Sept. 4.—Plate mills in this district are operating on an 80 per cent basis, the bulk of the business being made up of orders of less than 100 tons. During the past week no contracts calling for more than this amount of steel were placed, yet the business transacted ranks well with the volume booked during any week of the year. Practically all of this material is for third quarter shipment. Prices are firm at 2.00c, Chicago, and deliveries range from two to five weeks.

CONTRACTS PLACED

1000 tons for nine tanks for Standard Oil Co. of New Jersey, for Texas, to unnamed fabricator.
200 tons, tanks for Swift & Co., Vernon, Calif., to Lacy Mfg. Co.

CONTRACTS PENDING

174 tons, pipe line, Tacoma, Wash. Bids received.

Iron Ore

Shipments Increased to Some Steelworks—August Total Is Heavier

IRON ORE PRICES, PAGE 590

Cleveland, Sept. 4.—Some of the large steelworks have increased their iron ore shipping instructions, on contracts, due to better demand for steel products. The additions in the latter part of August amounted to more than 500,000 tons. Nothing like this has developed from merchant blast furnaces. The market continues quiet, with occasional sales of small amounts for filling in purposes. Shipments by vessel from the Lake Superior district in August totaled 9,242,869 tons, an increase of 467,376 tons over the amount shipped in August, 1927. The movement this year to Sept. 1 totals 32,517,693 tons, a decrease of 2,636,223 from the comparable period last year.

The steamer HARRY COULBY, of the Interlake Steamship Co.'s fleet, (Pickands, Mather & Co.) brought to Cleveland Saturday from the head of the lakes 14,178 gross tons of iron ore, bill of lading weight, slightly bettering the best previous record for an ore shipment through the Soo locks and lower lake channels. However, a cargo of 14,532 gross tons still stands as the record for deep-water hauling, from Superior to Sault Ste. Marie.

Pipe

Pipe Orders Small, but in Fairly Good Volume—Southern Plants Make Heavy Shipments

NEW orders for pipe are of a routine character. Jobbers' stocks of merchant steel pipe are being moved fairly rapidly. Small orders throughout the Middle West for cast iron and soil pipe bring the total for the week to a good volume. Shops in the Alabama district are active and report heavy shipments. Several important oil and gas line projects are pending.

PIPE PRICES, PAGE 590

Pittsburgh, Sept. 4.—Jobbers' stocks of merchant steel pipe are being turned over fairly rapidly, providing mills with a steady run of routine business. Activity in drilling and casing pipe, however, is spotty. Several oil and gas line projects involving good sized tonnages still are pending.

Conferences are being held at Chicago this week which may lead to the placing of 42,000 tons of 8, 10 and 12-inch pipe by the Sinclair interests for a pipe line from Oklahoma to Whiting, Ind.

Boston, Sept. 4.—The 200 tons of 6 to 16-inch pipe for the United States naval station at Newport, R. I., was awarded to Warren Foundry & Pipe Co. Overhanging the market is 150 tons of 6 to 16-inch pipe for the army training camp, Camp Devens, Ayer, Mass., and 100 tons of 6 and 8-inch pipe for Revere, Mass., on which the National Cast Iron Pipe Co. and R. D. Woods & Co. were low bidders. Prices on small diameters are strong.

New York, Sept. 4.—Demand for cast iron pipe is dull. Prices are unchanged.

Chicago, Sept. 4.—Sellers of cast-iron and soil pipe had a typical dull week preceding Labor day. No consequential public lettings were made and no interesting orders were placed by contractors. Small orders throughout the middle west brought the total for the week to a fair volume. Real estate development has tapered off materially. A good volume of pending business is now in engineers' offices and some worthwhile tonnages are expected to be let within the next few weeks. Prices are unchanged at $42.20 to $43.20, delivered, Chicago.

Birmingham, Ala., Sept. 4.—Lettings recently received here added to the unfilled tonnage of cast iron pipe makers and production activity now promises to extend well into the fourth quarter. The base price, $34 to $35, on 6-inch and over, is being adhered to. Shipments are heavy. Several of the shops are operating at nights in some departments.

CONTRACTS PLACED

202 tons, 2 to 8-inch class B, Phoenix, Ariz., to unnamed interest.
200 tons, 6 to 16-inch pipe for United States navy, Newport, R. I., to Warren Foundry & Pipe Co.
100 tons, Camp Devens, Ayer, Mass., to R. D. Wood & Co.
Six miles, 6 to 10-inch centrifugal pipe, for Amagansett, L. I., to United States Cast Iron Pipe & Foundry Co.

CONTRACTS PENDING

1236 tons, 4 to 10-inch class B pipe for Edmonds, Wood & Co.
500 tons, 6 to 16-inch, for water department, Brooklyn, N. Y.; bids Sept. 7.
320 tons, 2 to 16-inch class B, Santa Ana, Calif. Bids opened.
258 tons, 20 to 30-inch centrifugal pipe, San Bernardino, Calif. Bids opened.
150 tons, 4 to 8-inch, class C for Camp Devens, Ayer, Mass., bids opened Aug. 27.
147 tons, 6 to 10-inch class C, improvement Garnet street, San Diego, Calif. Bids opened.
100 tons, Revere, Mass., closed bids, Aug. 30, on 6 and 8-inch pipe.

Edmonds Against Price Fixing for Steel

Philadelphia, Sept. 4.—Any disposition to obtain permission to fix steel prices under government supervision should be discouraged, at least for the time being, in the opinion of former Congressman George W. Edmonds, of this city. Mr. Edmonds was influential some years ago in obtaining an amendment to the Sherman anti-trust law which exempts marine insurance from the provisions of that act, and his opinion was asked as to what could be done to obtain government aid for the steel industry along the lines suggested by Charles M. Schwab in his speech before the American Iron and Steel institute last May.

Marine insurance in no sense is analogous to steel, says Mr. Edmonds, for the reason that marine insurance always has been classed as a service, whereas steel is a commodity. The only feasible way of permitting price fixing in the steel industry, says Mr. Edmonds, would be to have a commission appointed whose relation to the steel industry would be much similar to that of the interstate commerce commission to the railroads. Under such supervision, says Mr. Edmonds, much would depend on the disposition reflected by the members of the commission toward the steel industry. Functioning under such a commission might look very good at the outset, he says, but it is easily possible that the last state of the industry might be worse than the first.

Mr. Edmonds believes that in the

long run the industry will get along much better without government assistance of a regulatory character. In any event, Mr. Edmonds believes that before the steel industry undertakes to get itself supervised by the government, it will do well to wait and see what the government does for the coal industry. What transpires in the next congress with reference to the coal industry, he believes, will indicate approximately what the steel industry reasonably could expect.

Tin Plate

Operations Continue at High Level—Prices Firm

TIN PLATE PRICES, PAGE 589

Pittsburgh, Sept. 4.—Tin plate operations are well sustained, although canmakers' requirements have declined. This marks the end of the packing season, but it is significant that the reduction in operations, which is expected shortly, has been delayed more than a month longer than was true a year ago. Other tin plate consumers continue to specify in fairly large volume. Tin plate is fairly steady at $5.25 and no change is anticipated by sellers at the end of the year, despite the reduction in the price of pig tin.

Youngstown, O., Sept. 4.—While up to this time the independent tin plate makers have been enjoying fairly good business, now a slight lull has reduced mill activities. Several makers in this section have received hold-up orders and some cancellations from the South. It appears the recent heavy storm in that section did such damage as to lead southern canners and packers to revise their estimates as to the number of cans they will need.

Iron, Steel Employment Reduced in July

Washington, Sept. 4.—Employment and payrolls in the iron and steel and allied industries declined in July compared with June, according to the bureau of labor statistics. Reports from 197 iron and steel works gave their June employment as 264,399, decreasing in July to 261,843, or 1 per cent. Their payrolls dropped from $8,238,688 in June to $7,764,125, or 5.8 per cent.

Reports from 162 structural ironwork plants gave their June employment as 25,899, and July 25.841, a decrease of 0.2 per cent. Their payrolls were reduced from $787,427 to $768,332, or 2.4 per cent. Forty-one cast iron pipe plants reported June employment as 12,965, and July 12,385, a decrease of 4.5 per cent. Their payrolls were lowered from $287,410 to $284,286, or 1.1 per cent.

Reports from 151 machine tool plants gave their June employment as 30,771, increasing in July to 31,246, or 1.5 per cent. Their payrolls, however, decreased from $1,008,665 in June to $982,870 in July, a decrease of 2.6 per cent.

Sheets

Consumers Showing More Interest in Fourth Quarter—Valley Mill Operations Increased

CURRENT sheet demands continue at a satisfactory rate, mill operations holding up well to recent levels, and increasing slightly in the valley district. August business was about equal to or better than that of July, and surpassed the volume of August, 1927. Some of the important consumers are obtaining prices on fourth quarter requirements. Large contracts are lacking.

SHEET PRICES, PAGE 589

Pittsburgh, Sept. 4.—Sheet demand is unusually steady, specifications from most consuming lines holding to a higher rate than had been anticipated a short time ago. August business equaled or exceeded that of July and showed a substantial gain over the volume of a year ago. Operations have been interfered with slightly by the warm weather but are holding as nearly as possible to the previously prevailing schedule. Prices are steady with current spot business taking 2.65c, base, Pittsburgh, for black sheets, 3.50c for galvanized, 2.00c for blue annealed, and 4.00c for full-finished, although business still is moving on contracts at lower figures. Operations of the automobile industry continue an important factor in the steady flow of business to sheet mills. A feature of the current situation is the fact that a number of rush orders are being received, indicating that activity has not been stimulated by consumers' buying in anticipation of higher fourth quarter prices.

New York, Sept. 4.—Current sheet specifications are active and prices on new business for quick shipment are unchanged. There has been no business as yet to establish the market for the fourth quarter.

Buffalo, Sept. 4.—Sheetmakers in this district say early sales are establishing fourth quarter prices at higher levels. Business taken to date has been entered at 2.75c, base, Pittsburgh, for black, 3.60c for galvanized and 4.00c for full finished. Buffalo sheet mills are operating at 85 to 90 per cent.

Cleveland, Sept. 4.—Increased consumption is noted generally by sheet mills. This, they state is promptly translated into increased specifications. Mill backlogs, however, are by no means unwieldy, for the reason that while undoubtedly some anticipative tonnage has been placed, little in the way of speculative tonnage is found on mill books. Mills are confident all third quarter contracts will be fully worked out. Mills are quoting 2.75c on black, 2.00c on blue annealed up to 45 inches in width; 3.60c on galvanized, and 4.00c on full finished for fourth quarter.

Detroit, Sept. 4.—Some of the larger users of steel sheets are taking figures on their fourth quarter requirements but thus far no important contracts have been closed. It is claimed by all makers that 4.00c, Pittsburgh, is firm on autobody grades. On black and blue annealed sheets a wide spread is revealed. From the manner in which bids of 2.60c and 2.65c fail to obtain business it is evident that some of the larger users are covering at lower figures. Likewise, on blue annealed, prices of 2.00c and 2.10c do not bring in orders. The open market price on blue annealed for fourth quarter is 2.00c to 2.10c, depending upon width, and on black 2.75c. Body and stamping manufacturers have taken a definite stand against the reduction in the discount for cash from 2 per cent to ½ of 1 per cent, effective Oct. 1.

Chicago, Sept. 4.—Specifications for black and galvanized sheets are piling up, and are scheduled two weeks ahead. Blue annealed sheet specifications are three to four weeks ahead, producers reporting heaviest order mail in several months. Fourth quarter books are to be opened within ten days. Consumers show little interest for future requirements.

St. Louis, Sept. 4.—Producers and distributors of sheets express satisfaction relative to current business and the outlook for fall trade. Specifications from various consumers are holding to the recent high levels, and the volume of new orders is fairly steady. Prices are steady.

Philadelphia, Sept. 4.—Mills generally are quoting current prices on sheets for delivery up to Oct. 1. Black sheets are 2.65c, base, Pittsburgh; galvanized 3.40c to 3.50c; blue annealed 2.00c to 2.10c. Several large orders were placed in the past week for immediate shipment, buyers thus taking advantage of the discount of 2 per cent for cash in ten days. Specifications continue heavy, and eastern mills are operating at about 90 per cent.

Youngstown, O., Sept. 4.—Only twice previously this year have the independent sheetmakers in this district had as many units active as they have this week, 114 units out of a total of 127. This compares with 105 units active last week. Specifications have been coming along as formerly but sufficient business on most grades of sheets accumulates each week to furnish satisfactory rolling schedules. Some new business has been done at the new quotations for future delivery, and they appear to be taking hold.

Structural Shapes

Specifications and Orders Coming to Mills in Satisfactory Volume but Interest in Fourth Quarter Is Small—Prices Are Firm

STRUCTURAL demand has shown no decline and the movement from mills in August is practically on a parity with that of July. At the same time, bookings in August at Chicago will exceed those of July. Business being placed at present is largely small lots, coming from a wide variety of consumers. Fabricators have such an aggregate of these tonnages that their shops have larger backlogs than at any time previously in 1928. Prices for third quarter tonnage are being held firmly and an announced advance of $2 per ton for fourth quarter is exciting no opposition from consumers, especially as there is no present interest in that delivery. A 6200-ton bridge leads the week's awards. Bids are in on 19,200 tons for New York subway work.

STRUCTURAL SHAPE PRICES, PAGE 589

Chicago, Sept. 4.—Orders and specifications for plain structural steel are coming to mills at a satisfactory rate. August probably will rank as one of the best months of the year. Tonnage booked during the month will exceed July, 1928, and will be materially ahead of August, 1927. Although business being placed involves a satisfactory tonnage it is not featured by large contracts, but is made up of small and scattered lots representative of practically all consuming industries. Fabricators' shops are filled with these small orders and their backlogs are greater than at any previous time in 1928.

Third quarter prices are holding firmly on all new business and little objection is being raised by consumers over the announced advance of $2 a ton to 2.10c.

Boston, Sept. 4.—Structural business did not show much improvement in the past week. There was only one award of size, 250 tons for the new station in the Back Bay district for the New York, New Haven & Hartford railroad, to replace the structure destroyed by fire last spring. Pending business is less than 500 tons, in which are 104 tons for the New England Trust Co. building, Newbury street, Boston, 150 tons for a new Woolworth building on Tremont street, Boston, and 200 tons for the new plant for the Ames Shovel & Tool Co. at North Easton, ground for which was recently broken.

New York, Sept. 4.—While structural buying in this district in August fell under the July record a substantial tonnage was placed, with prospects for September promising. The proposed $2 advance on shapes for fourth quarter also scheduled from Sept. 15 is expected to provide particular stimulus during the next two weeks. Among recent sales were 6200 tons for the Pennsylvania-Lehigh Valley bridge over Newark bay and 4500 tons for an addition to the Herald Square building. Inquiry includes five schools involving 200 tons.

Cleveland, Sept. 4.—While a lull has been experienced during the past few days in inquiries involving structural shapes, no real setback has come to specifications on raw material. Mills report a steady influx of these and this may possibly be traced to the fact that they are commencing to quote 2.00c for fourth quarter. None of these so far has been booked. The spot market price usually is 1.90c, with some material shipped out at 1.85c. Steel for the building for the Goodrich Rubber Co., Akron, O., will be fabricated by the Fort Pitt Bridge Works. Bids on the general contract will be opened this week. Approximately 5000 tons will be required for expansion of Lakeside hospital; this will be acted upon in two weeks.

Philadelphia, Sept. 4.—A few consumers were placed on a higher price basis for structural shapes Sept. 1, but the old prices will continue in effect with others until the end of September. There is no indication what the minimum will be in the fourth quarter, but the current range generally is 2.0c to 2.10c, delivered, Philadelphia. Bookings continue good.

Pittsburgh, Sept. 4.—Specifications for plain structural materials are well maintained and the August movement compares favorably with July. Awards generally are small but some improvement is noted in inquiry. Plain material is quoted at 1.90c. Little interest is being shown in fourth quarter.

Detroit, Sept. 4.—Frank F. Rogers, state highway commissioner, Lansing, Mich., has been commissioned by Gov. Fred W. Green to make a survey of the feasibility of building a highway bridge across the Straits of Mackinaw.

Awards Compared

	Tons
Awards this week	38,860
Awards last week	15,669
Awards two weeks ago	42,091
Awards this week in 1927	31,940
Average weekly awards, Aug.	34,957
Average weekly awards, 1927	39,087
Total awards to date, 1927	1,297,941
Total awards to date, 1928	1,368,046

CONTRACTS PLACED

6200 tons, Pennsylvania-Lehigh Valley bridge, Newark Bay, divided between American Bridge Co., and Bethlehem Steel Co.

4500 tons, Herald Square building addition, New York, to Taylor-Fichter Steel Construction Co.

4000 tons, 14 miscellaneous projects in the metropolitan district, to unnamed fabricators.

3500 tons, building, Goodrich Rubber Co., Akron, O., to Fort Pitt Bridge Works.

3000 tons, bridge at Quincy, Ill., to American Bridge Co.

2540 tons, apartments 312 and 324, East Forty-second street, New York, to Harris Structural Steel Co.

1800 tons, for Interstate Iron & Steel Co., to Worden-Allen Co. (incorrectly reported last week as going to American Bridge Co.).

1000 tons, bridge in Illinois for Chicago, Milwaukee, St. Paul & Pacific railroad, to American Bridge Co.

1000 tons, for Steel & Tubes Inc. plant at Ferndale, Mich., to Whitehead & Kales.

1000 tons, Packard service building, Fifty-fourth street, to McClintic-Marshall Co., previously noted going elsewhere.

1000 tons, apartment, Thirty-eighth street and Second avenue, New York City, to unidentified eastern fabricator.

925 tons, warehouse and shipping building, American Rolling Mill Co., Middletown, O., to McClintic-Marshall Co.

860 tons, apartment, Staten avenue, Oakland, Calif., to Pacific Coast Engineering Co.

800 tons, open hearth furnace binding, Ford Motor Co., Detroit, to Jones & Laughlin Steel Corp.

800 tons, Baltimore & Ohio railroad bridges in Chicago district, to American Bridge Co.

700 tons, chamber of commerce building, Jamaica, Long Island, to Lehigh Structural Steel Co.

700 tons, apartment 1001, Park avenue, New York, to Hedden Iron Construction Co.

625 tons, building for Dugan Bros., Queens, to National Bridge Works, New York.

615 tons, building, Title & Guarantee Co., New York, to George A. Just Co.

600 tons, building for Congoleum Co., Marcus Hook, Pa., to American Bridge Co.

555 tons, apartment 313, East Seventy-third street, New York, to Taylor Bridge & Steel Construction Co.

500 tons, medical hospital, Indianapolis, to Insley Mfg. Co.

500 tons, New York Central railroad bridge at Cleveland, to Mt. Vernon Bridge Co.

440 tons, bridge West Forty-third street, Chicago, to Mt. Vernon Bridge Co.

400 tons, warehouse for Congoleum Co., Marcus Hook, Pa., to Lackawanna Steel Co.

250 tons, Boston, for Back Bay station, New Haven railroad, to New England Structural Co.

250 tons, New York Central railroad bridge at Nepperhan, New York, to Fort Pitt Bridge Co.

250 tons, two elevators for towers, New York, to McClintic-Marshall Co.

200 tons, consistory building, Coudersport, Pa., to Guilbert Steel Co.

170 tons, Deschutes River bridge, Maupin, Oreg., General contract to Kuckenberg & Wittman. Fabricated steel to unknown interest.

150 tons, automobile salesroom and garage, West Springfield, Mass.

150 tons, highway bridge at Cape May, N. J. to Phoenix Bridge Co.

130 tons, precipitation plant Pacific Coast Cement Co., Seattle, to Wallace Bridge & Structural Steel Co.

130 tons, extension to slab yard crane runway of Otis Steel Co., Cleveland, to Wellman-Seaver-Morgan Co. Also, contracts for furnishing and fabricating structurals for new open hearth furnace for Otis Steel Co. have

been placed with Wellman-Seaver-Morgan Co.
115 tons, factory building, Creighton, Pa., to McClintic-Marshall Co.
105 tons, building, Central Alloy Steel Corp., Canton, O., to McClintic-Marshall Co.

CONTRACTS PENDING

19,200 tons, subway route No. 107, section No. 5, New York; Necargo Co., Inc., 105 Court street, Brooklyn, N. Y., low bidder.
2700 tons, Salvation Army headquarters, Fourteenth street, New York, previously noted involving 1500 tons.
1200 tons, bridge at Grand Forks, N. D.
1000 tons, school No. 27, New York.
750 tons, school No. 200, New York.
750 tons, school No. 94, New York.
700 tons, two-story structure 155th and St. Nicholas avenue, New York.
700 tons, school No. 12, New York.
600 tons, Lewis building addition, Philadelphia.
500 tons University of Pennsylvania hospital, Philadelphia.
500 tons, bridge for Baltimore & Ohio railroad, Chicago district.
300 tons, bridge at Pawtucket, R. I.; bids Sept. 17.
300 tons, private residence, Glencove, Long Island, N. Y.
200 tons, state highway bridges, state of Vermont.
200 tons, government barracks on Governor's Island, New York.
200 tons, Ames Shovel & Tool Co. plant, North Easton, Mass.
150 tons, Woolworth store, Tremont street and Hayward place, Boston.
150 tons, municipal incinerator, Brooklyn, N. Y.
124 tons, steel bridge over Wenatchee river near Cashmere, Wash.; bids Sept. 18.
104 tons, New England Trust Co. building, Newbury street, Boston.

More Sheet Mills, Open Hearths Put On

Youngstown, O., Sept. 4.—While production figures for the week may drop slightly due to observance of Labor day in the valleys, yet plant operating rates from Tuesday forward will be high. Independent steelmakers have put on an additional open hearth, making 45 active out of 53 units. The Youngstown Sheet & Tube Co. is around 80 per cent active, and the Republic Iron & Steel Co. is slightly above 80 per cent. Independent bar mills are at 70 per cent of capacity, and the Carnegie Steel Co. continues at 75 per cent. With 114 units active out of a total of 127, the independent sheetmakers have 9 more units on this week than last. Stripmakers are 100 per cent active, but tin plate operations show a slight recession to around 70 per cent. Pipe output is unchanged with 14 active out of 20 welded and seamless units.

Portland Cement Output Steady in July

The Portland cement industry in July produced 17,431,000 barrels, shipped 19,898,000 barrels from the mills, and had in stock at the end of the month 22,571,000 barrels, according to the United States bureau of mines. The production of portland cement in July showed an increase of 0.1 per cent and shipments an increase of 4.8 per cent, compared with July, 1927. Portland cement stocks at the mills were 16.4 per cent higher than a year ago.

Concrete Bars

Market Continues Active—New Method of Quoting Firmly Established

A CONTINUATION of the heavy buying movement in concrete reinforcing bars is noted in the East and Middle West. The past week's business in eastern territory was one of the heaviest in many months, while a large volume of small orders poured in on mills at Chicago. Demand for rail steel bars has exceeded the capacity of some of the mills in the Chicago district.

REINFORCING BAR PRICES, PAGE 589

New York, Sept. 4.—Prices paid for concrete bars denote that the change in the method of quoting which began to develop on Aug. 1 now has become fully established. On that date the mill stock price on concrete bars was changed from 2.20c, base, Youngstown, to 2.15c, base, Pittsburgh. At the same time the mills abandoned their old method of selling concrete bars cut to length. The purpose of this change was to enable concrete bar distributors to obtain their legitimate part of the going business. In August the principal mills have followed the policy of supplying concrete bars only in mill lengths, that is, 40, 50 and 60 feet, and while the price on these mill lengths has been 1.90c, base, Pittsburgh, the refusal of the mills to cut to specified lengths has forced business to distributors which otherwise might have gone to one of the mills. A notable instance was a recent order for 700 tons of concrete bars placed in this territory, which went at 2.15c, base, Pittsburgh, equivalent to 2.49c, delivered. This order, under the old conditions, likely would have been booked by a mill at around 1.90c, base, Pittsburgh, or 2.24c, delivered.

Philadelphia, Sept. 4.—The past week's business in concrete bars was one of the heaviest in some time, and shows the market in this district is now on a basis of 2.15c, base, Pittsburgh, for mill stocks. This is equivalent to 2.47c, delivered, Philadelphia. Local warehouse prices now are 2.85c, base, delivered out of local stocks.

Pittsburgh, Sept. 4.—Inquiry for concrete bars is more active. Awards in the past week were generally small, but the Jones & Laughlin Steel Corp. received three jobs involving 3550 tons. On stock length billet bars the usual quotation is 1.90c, base, Pittsburgh, with 2.15c on cut lengths.

Buffalo, Sept. 4.—Strength in the reinforcing bar market is reported especially on small lots shipped direct from stocks maintained here. The current price of such tonnage has advanced to 2.415c, Buffalo, it is claimed. This is especially worthy of note in view of warehouse reports of recent low priced offerings by steelworks of small lots of reinforcing bars.

Chicago, Sept. 4.—Concrete reinforcing bars are active. Shipments are heavy. While few contracts over 100 tons have been placed a large number of small orders are being booked from day to day. The number of sizable new inquiries is limited. However, a large volume of work is expected to come out early next month and sellers anticipate continuance of the heavy buying movement. Billet steel reinforcing bars are reported firm at 2.30c, f.o.b. warehouse, by a number of interests, although undoubtedly some large tonnages are going at about 2.20c. On this grade the mill base for fourth quarter business has been advanced to 2.00c, an increase of $1 over the nominal base price for third quarter.

During August demand on the mills for rail steel bars has been particularly heavy, exceeding actual capacity of mills in some instances as much as 33 per cent. A good portion of this demand for rail steel bars is for fencing purposes. Although the fourth quarter price has not been announced it is expected that rail bars will follow billet bars and go up $1 a ton to 1.90c, base, mill.

Awards Compared

	Tons
Awards this week	7,130
Awards last week	5,907
Awards two weeks ago	2,835
Awards this week in 1927	4,275
Average weekly awards, Aug.	5,863
Average weekly awards, 1928	7,070
Total awards to date, 1927	198,824
Total awards to date, 1928	247,435

CONTRACTS PLACED

3550 tons, to Jones & Laughlin Steel Corp., including: 1000 tons, sewer, Columbus, O.; 2300 tons, Haddon Hall hotel, Atlantic City, N. J.; and 250 tons, Haddon Hall garage, Atlantic City, N. J.
900 tons, billet and rail steel bars for Sheridan Tower, Chicago, to Concrete Engineering Co.
600 tons, reinforcing bars for new plant of United States Gypsum Co., Chicago, to Calumet Steel Co.
300 tons, Genesee garage, Buffalo, to Kalman Steel Co.
225 tons for school, Altoona, Pa., to Taylor Davis Co.
200 tons for sewer work, Philadelphia, to Taylor, Davis Co.
200 tons for building for Sears, Roebuck & Co., Philadelphia, to Taylor, Davis Co.
200 tons, road work, eastern Pennsylvania, to Concrete Construction Co.
160 tons, Hudson river bridge anchorages, to

McClintic-Marshall Co.
160 tons, Deschutes River bridge, Maupin, Oreg. General contract to Kuckenberg & Wittman. Bars to unknown interest.
130 tons, hospital, Bloomsburg, Pa., to Concrete Construction Co.
105 tons, South Branch canal, Kittitas project, Ellensburg, Wash. General contract to Morrison & Knudnsen. Bars to unknown interest.
100 tons, Glen Willow Ice Mfg. Co. building, Philadelphia, to McClintic-Marshall Co.
100 tons, Alabama Avenue bridge, St. Louis, Laclede Steel Co.
100 tons, Dugan bakery, Long Island City, N. Y., to McClintic-Marshall Co.
100 tons, Hooker chemical plant, Tacoma, Wash., to Northwest Steel Rolling Mills.

CONTRACTS PENDING

1000 tons, new barracks on Governors Island, New York City.
600 tons, rail steel bars, Dilke Construction Co., stores and offices, Chicago.
210 tons, West Stanislaus Irrigation District, Westley, Calif. Bids received.
200 tons, addition to St. Mary's Hospital, St. Louis.

Bolts, Nuts, Rivets

Well Sustained Sales Larger Than in July

NUT AND BOLT PRICES, PAGE 590

Pittsburgh, Sept. 4.—Buying of bolts, nuts and rivets is fairly well maintained, and August sales of some makers exceeded those of July. Rivets still are moving slowly, with railroad purchasing light and jobbers buying only in small lots. Operations are unchanged at 60 to 65 per cent.

Philadelphia, Sept. 4.—August was second only to March in specifications for bolts and nuts. Railroads are expected to come into the market in September and give more activity. Prices are firm at 70 off to large and 60 off to small buyers. First quarter contracts on this basis are expected to be signed in the next week or two. Rivets are firmer at 2.90c, Pittsburgh, although 2.75c continues in a few instances.

Chicago, Sept. 4.—Fourth quarter contracting for bolts and nuts will start within the next few days. No definite announcement on prices has been made. Buyers are inquiring actively as to probable quotations for last quarter. August specifications are heavier than for July and are showing a steady increase, due largely to farm implement activity.

Fewer British Employed

Birmingham, Eng., Aug. 24.—The August number of *Ministry of Labor Gazette* gives particulars relative to employment in July.

Employment in the pig iron industry showed a decline compared with the previous month. The percentage unemployed was 20.1, compared with 15.4 in June and 12.3 in July, 1927. Furnaces in blast numbered 131 and were divided among the various districts as follows: Durham and Cleveland 29; Cumberland and West Lancashire 11; parts of Lancashire and Yorkshire (including Sheffield) 8; Derby, Leicester, Nottingham and Northampton 28; Lincolnshire 14; Staffordshire, Shropshire, Worcester & Warwick 10; South Wales 9; Scotland 22.

Rails, Cars

Miscellaneous Track Orders Give August High Average—300,000 Wooden Cars To Be Replaced

AUGUST sales of rails and track accessories were ahead of those of July and also exceeded those of August last year. The past week's business, however, was not impressive. Action is expected within a few days on the Chesapeake & Ohio's inquiry for 45,500 tons of rails. Car orders are light. About 300,000 wooden cars must be replaced with steel by Jan. 1, 1931.

RAILROAD TRACK PRICES, PAGE 590

Chicago, Sept. 4.—Lack of car buying continues to be the enigma of the steel mills. The 1000 hopper bottom gondolas for the Great Northern still is the only inquiry pending. During the past week the Illinois Terminal Co. purchased 100 box cars. It is believed the Chesapeake & Ohio railroad will place its order for 45,500 tons of rails early in the week. Some inclination on the part of the carriers to come into the market for their rail requirements two or three weeks earlier than usual is sensed by the mills. Odd lots of standard rails are being bought in sufficient quantities to maintain rail mills on a 50 per cent basis. Buying of accessories is holding up, the mills receiving frequent orders for rush shipments of small quantities needed to round out maintenance of way programs.

New York, Sept. 4.—The ruling by the American Railway association against the use of wooden cars after Jan. 1, 1931, has brightened the outlook for car builders considerably. This means that the 300,000 existing wooden cars must be scrapped and perhaps replaced in the next two years. Meanwhile car buying is light, with preliminary estimates indicating 677 domestic freight cars for August, compared with 582 for July, the lowest monthly total this year.

Philadelphia, Sept. 4.—Heavy purchases of track spikes, bolts and tie plates are expected to be made this month by eastern railroads.

Pittsburgh, Sept. 4.—Track accessory orders are steady. August sales of some interests were well ahead of the July total and generally larger than a year ago. The same is true of light rails. A fair demand still is coming from the coal mining districts. Railroad spikes are firm at 2.80c, Pittsburgh. Light rails are $36.

CAR ORDERS PLACED

Central of Georgia, combination passenger and baggage gasoline rail motor car, to J. G. Brill Co.
Montevideo port authority, 20 flats, to foreign builder.
Republic Iron & Steel Co., repairs to four dump cars, to Clark Car Co.

LOCOMOTIVES PLACED

Pennsylvania, 10 locomotives, to its Altoona shops.
Solvay Process Co., Syracuse, N. Y., two tank locomotives to American Locomotive Co.
Texas Co., one switch engine, to Baldwin Locomotive Works.

CAR ORDERS PENDING

Chesapeake & Ohio, 2 diners, contemplated.
Southern Pacific, 25 diners, contemplated.

LOCOMOTIVES PENDING

Belt railway, Chicago, 10 switchers.
Great Northern, 10 locomotives.

Increases Ore Unloading Facilities at Buffalo

In continuation of the policy adopted about four years ago of plant modernization the Bethlehem Steel Co. has awarded a contract for an automatic ore unloader for its Lackawanna plant at Buffalo, to the Wellman-Seaver-Morgan Co., Cleveland. This unloader will operate on the same tracks as five other machines of this same type and will have a nontelescopic bucket of 17 tons capacity, a receiving hopper, with revolving disk discharge, with an apron feeder mounted on a rotating frame and a belt conveyor with a traveling tripper.

Ore either will be loaded into railroad cars standing on the first track inside the front leg, or stocked under the cantilever beyond the rear leg through the receiving hopper, apron feeder and belt conveyor with tripper. The trolley with bucket will be designed for one trip in 50 seconds with 17 tons of ore. The machine proper travels 75 to 100 feet a minute. The machine is electrically operated throughout, there being a total of ten motors ranging in size from 15 to 275 horsepower.

British Foreign Trade Tonnage Less

Birmingham, Eng., Aug. 24.—(*European Staff Service*)—The British board of trade's return for July shows a total export of iron and steel products, including scrap, of 352,475 tons, compared with 398,233 tons in June and 433,949 tons a year ago.

Imports including scrap totaled 234,299 tons, compared with 224,834 tons in June and 339,394 tons a year ago.

Wire

Prices Being Held and Fourth Quarter Business Being Booked —Buying Better

SOMEWHAT better buying of wire and nails is being done as the summer ends and autumn activities appear. Some consumers expect an advance of $2 shortly, but many producers are quoting present prices, based on 2.40c, Pittsburgh, for wire and $2.25 for nails, for the last quarter. Efforts to obtain concessions have failed, though some weakness in nails develops.

WIRE PRICES, PAGE 590

Chicago, Sept. 4.—Demand for steel wire and nails continues active and mills are operating at about 65 per cent. Sales to manufacturing interests have been especially gratifying and have offset to some extent the abnormally low purchases of railroads. Jobber stocks are said to be low and some improvement in demand from this source is reported. Prices of nails and wire are more satisfactory to sellers, although low quotations crop up here and there. The market is 2.55c, western mill, for wire and $2.60 per 100-pound keg for nails. Books for fourth quarter are now open.

Worcester, Mass., Sept. 4.—Wire buying shows slight improvement at steady prices. Purchases are in limited lots, but more numerous. Demand for specialty wire leads and export trade is steady and a decided factor in this market. The price situation is much firmer with several makers talking slight advances for some specialty material products. Light bright wire buying is showing a slight gain.

New York, Sept. 4.—Some nail buyers have not ceased trying to force concessions. However, it is found that prevailing prices are being obtained on all business. These are $2.55, base, Pittsburgh, to jobbers and $2.65 to dealers. Some last quarter contracts already have been signed at these prices. Some contracts for manufacturers here also have been signed for fourth qqarter at 2.40c, base, Pittsburgh.

Pittsburgh, Sept. 4.—Some inquiry is appearing for fourth quarter wire. Several producers have opened books at current prices, 2.40c, Pittsburgh, for plain wire, and $2.55 for wire nails. Specifications for manufacturers' wire are active, the August volume comparing favorably with that of July. A slight improvement also is noted in nail demand recently. Buying of wire products is beginning to appear from the agricultural districts, particularly from the northwest.

Philadelphia, Sept. 4.—Nail and wire specifications are slow compared with earlier periods of the year, although the current volume is good for the summer season. Prices are firm at 2.40c, Pittsburgh, for wire and $2.55, Pittsburgh, for nails.

Detroit, Sept. 4.—An increase of $2 a ton in wire products to establish the current levels of 2.40c, Pittsburgh-Cleveland, on plain wire and $2.55 on wire nails for the fourth quarter is expected by some interests here. Most sellers have opened books for the fourth quarter on this basis but thus far sales have been light. The automotive industry is taking as much wire as in any September. Nails are moving slowly, with the usual shading by small makers.

Coal miners in Oklahoma averaged 3.35 tons per day in 1927, according to the federal bureau of mines.

Cold Finished Steel

Demand Better Than Usual for Summer Season

COLD FINISHED PRICES, PAGE 589

Pittsburgh, Sept. 4.—Demand for cold finished bars is active for this period of the year, largely because of continued automotive activity. Sellers report that August business compares favorably with July and is substantially larger than a year ago. Current business is being placed at 2.20c, Pittsburgh, which is reported firm. The fourth quarter price will be announced soon.

Detroit, Sept. 4.—Users of cold finished bars having been covered at 2.10c, Pittsburgh-Chicago, before the recent advance to 2.20c, this new level is largely an asking price at this time. Makers, however, expect to establish it for the fourth quarter. Meanwhile, specifications are good. The tendency toward specialization in the manufacture of automatic screw products is tending to diversify purchases.

Strip

Sales on Better Basis and Fourth Quarter Prices Firm—Specifications Are Heavy

STRIP makers are booking orders at a heavy rate and prices are firm, with some business being booked at the present level. Some tendency is shown to advance prices but sales have not been made at the higher level. Third quarter tonnages are being specified out fully. Some makers found August bookings largest in many months.

STRIP PRICES, PAGE 590

New York, Sept. 4.—Some makers now are quoting 2 85c, base, Pittsburgh, on cold rolled strip steel, plus extras for smaller quantities. Asking prices on hot rolled strip are 2.30c, base, Pittsburgh, for less than 3 inches wide, 2.10c for 3 to 6 inches and 2.00c for 6 to 12 inches. There has been no business at these prices, so far as known, so that there is no indication as to what figures will be developed in connection with fourth quarter. Specifications on third quarter contracts continue exceptional and some strip makers say their bookings in this territory during August are the largest of any month this year.

Pittsburgh, Sept. 4.—Strip steel sales are well maintained, in many cases exceeding expectations of sellers. Prices are firmer, with spot business quoted at 2.20c on less than 3-inch, 2.00c on 3 to 6-inch, and 1.90c on 6 to 12-inch. These prices also have been named for fourth quarter contracts. Material is being shipped, however, on contracts at less than these figures. Sellers are quoting 2.85c on cold rolled strip in lots over three tons, but with most current activity confined to contracts the new figure has not been afforded a good test.

Philadelphia, Sept. 4.—Further developments in the strip market indicate that both hot and cold will be renewed through fourth quarter at prevailing prices bv some mills. Current prices range from 1.80c to 2.20c, Pittsburgh, for hot strip depending on width, and 2.75c to 2.85c, base, Pittsburgh, on cold rolled strip, although in some instances lower figures are still outstanding. Demand for strip continues good.

July Oil Output Gains

Production of crude petroleum in United States in July totaled 75,426,000 barrels, a daily average of 2,433,000 barrels of an increase of 15,500 barrels daily over June, states the federal bureau of mines. Gasoline production in July established a new high record when the daily average output was 1,061,000 barrels. Daily average domestic demand for gasoline passed the one million-barrel mark in July for the first time in history when it amounted to 1,032,000 barrels. This was an increase of 7.5 per cent over June.

Nonferrous Metals

Large Business Done During Past Week—Nearly All Metals Are Well Booked For September—Stocks Are Limited

Prices of the Week, Cents a Pound

		Copper			Straits Tin							
		Electro delivered	Lake delivered	Casting refinery	New York Spot	New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Aug.	29	14.75	14.87½	14.37½	47.75	46.25	6.40	6.22½	6.25	23.90	10.12½	35.00
Aug.	30	14.75	14.87½	14.37½	48.12½	46.50	6.40	6.22½	6.25	23.90	10.00	35.00
Aug.	31	14.75	14.87½	14.37½	48.25	46.62½	6.40	6.22½	6.25	23.90	10.00	35.00
Sept.	3	Holiday										
Sept.	4	14.75	14.87½	14.37½	48.12½	46.50	6.40	6.25	6.25	23.90	10.12½	35.00

NEW YORK, Sept. 4.—Nonferrous metal business was large during the past week. Nearly all metals are well booked for September, with limited stocks, and the outlook for October bright. Prices were firm to strong.

Brass and copper products have been active lately, after dull buying early in August. Demand has been mostly for early shipment but has extended into October. Prices have held unchanged on the basis of 14.75c, Connecticut, for copper since late in May. Lately there have been no price changes in prospect to influence buying, and so users have been covering only early requirements. With copper in a strong position, good product buying is expected. Shipments have held to a high level right along.

Copper—Copper sold in the past week in good tonnage for domestic shipment. October buying was active for the first time. Some September business was done, and a little November coupled with October. Producers are well booked for September and shipments that month will be in a tight situation. Export buying eased up after having been active, for September and October. Prices are unchanged at 14.75c, Connecticut, 14.87½c, Midwest, 15.00c, c.i.f. European ports.

Tin—Tin was moderately active nearly every day and big business was done Friday. The bulk of the business was in early positions, with some over the rest of the year. Users appear to have needed more than they had expected and were forced to buy nearby metal, with the result that such continued to command a big premium, more than 1 cent above the late months of the year. Domestic deliveries of 7200 tons were made in August, a figure seldom exceeded and about 1000 tons over the monthly average of the past year and a half. Stocks and landing were 1718 tons, a cut of 1160 in the month. Stocks alone were large but the amount in landing was small. Spot and nearby command a big premium despite large stocks because of the fact that nearly all metal here is held by one large importer.

Lead—Buying of lead in the past week was large again and prices were strong but unchanged, except for a little premium on East St. Louis October lead.

Zinc—Prime western continues quiet, but producers remain firm at 6.25c, East St. Louis, which price has ruled for a month on all positions. On account of the way in which users have been buying without shopping around very much, total sales last month may have been a little larger than at first realized. This way of buying without inquiring around much, is due to the fact that users have come to realize that at least for the present they are not able to bargain.

Aluminum—Buying has been active for early shipment, and prices are firm but unchanged. The secondary market has been an exception lately to the firmness. Some sellers expect more contracting soon for the balance of the year.—*Daily Metal Trade.*

Mill Products

Base prices cents per pound f.o.b. mill

SHEETS	
Yellow brass (high)	19.25
Copper, hot rolled	23.50
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	9.75
Zinc strip (100 pound base)	9.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	31.30
SEAMLESS TUBES	
Yellow brass (high)	24.12½
Copper	25.00
RODS	
Yellow brass (high, full turning)	17.00
Naval brass	19.75
WIRE	
Copper, car lots	16.37½
Yellow brass (high)	19.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.50 to 9.75
Chicago	9.25 to 9.50
Cleveland	9.50 to 10.25
HEAVY YELLOW BRASS	
Chicago	7.00 to 7.25
Cleveland	7.00 to 7.50
ZINC	
New York	3.50
Cleveland	2.75 to 3.25
HEAVY COPPER AND WIRE	
New York	12.25
Boston	11.50 to 12.00
Chicago	11.50 to 12.00
Cleveland	11.25 to 12.00
RED BRASS BORINGS	
New York	8.50 to 9.00
YELLOW BRASS TUBING	
Cleveland	7.00 to 7.50
LIGHT COPPER	
New York	10.75
Chicago	10.50 to 10.75
Cleveland	9.50 to 10.50
LIGHT BRASS	
Boston	5.75 to 6.00
Chicago	6.75 to 7.00
Cleveland	5.00 to 5.50
ALUMINUM	
Clippings, Cleveland	16.00 to 17.00
Borings, Cleveland	7.50 to 8.00
Cast, Cleveland	11.50 to 12.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt Aluminum No. 12	15.00 to 15.50
Brass ingot, 85-5-5	12.50 to 13.00

Coke By-Products

Benzol Prices Strong—Sulphate of Ammonia Is Well Sold

New York, Sept. 4.—With benzols unusually active, prices on these products are as strong as at any time in weeks, although no change is expected in the near future. Toluol also continues to move well, with the production of some leading sellers sold up for September. Much of this buying is by the automotive industry, whose operations have held up exceptionally well. Dullness, on the other hand, is noticeable in solvent naphtha and commercial xylol.

Production of sulphate of ammonia is well sold up, with the contract market unchanged at about $2.20, works. However, there is little spot demand either for domestic or foreign account. Flake and ball naphthalene is moving slowly at unchanged prices. Sellers look for little improvement for a couple of months, until contracting season again sets in.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.22	.....
90 per cent benzol	0.22	.....
Toluol	0.35	.....
Solvent naphtha	0.30	.....
Commercial xylol	0.30	.....
Per Pound at Producer's Plants in 250-Pound Drums		
Phenol	0.17	.....
Per Pound at Producers' Plants		
Naphthalene flakes	0.06 to 0.07	
Naphthalene balls	0.06 to 0.07	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.20	

The first elevated city passenger railroad ever built was the Greenwich street railroad in New York, which was commenced in 1866 and has been in successful operation since 1872. It is now known as the Ninth avenue elevated railway.

Warehouse

Tighter Mill Delivery Situation May Benefit Warehouses—Adopt Lower Sheet Discount —Cold Finished Prices Raised at New York

WAREHOUSE business in iron and steel begins September with the expectation that a tighter mill delivery situation will increase demand for material out of stock. In some centers August warehouse movement was the highest for any month this year. Prices have shown little change in the past week.

Materials continue to move in fair volume from Boston warehouses and prices are continuing to show firmness. There is some expectation that from now on rather a better volume will be called for.

Effective Sept. 1, jobbers in the New York metropolitan district advanced their prices on cold finished material 10 cents per 100 pounds, rounds and hexagons now holding at 3.50c and flats and squares at 4.00c. This follows stronger prices at the mills and a somewhat better demand, and is the first revision since Feb. 6, when a 10 cent advance was announced. Following the holiday lull, the general market again is more active. August for most jobbers was not quite up to July, although a good month considering the season.

Pittsburgh warehouses report that sales of iron and steel products are holding to an unchanged level. Some sellers report a substantial increase in August business from the July level, while others note little change. Sales in most cases, however, are running ahead of the rate at this time a year ago. Prices generally are steady although some shading of quotations of sheets is reported in the southern territory.

Buffalo warehouses have had their largest sales volume of the year in the past 60 days. Distribution of materials has been wide and prices steady during that period. Shapes continue to be a leader in sales. A quick pickup in business is anticipated after the Labor day holiday and good September business as well.

Chicago warehouses and jobbers have decided to accept the new cash discount rate of one-half of 1 per cent instead of 2 per cent on steel sheets and cold rolled strips. This curtailed discount will be passed to warehouse customers, Oct. 1. Sales of iron and steel products through jobbers are steady. August totals will probably equal July and exceed August of a year ago. Individual orders continue to grow smaller. Slightly less direct mill competition is being experienced.

Most warehouses at Cleveland ran up greater sales in August than in July and August a year ago. September opens as auspiciously. Prices

(*Concluded on Page* 605)

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.70c
Pittsburgh	2.90c
Portland	2.50c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.10c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York†‡	2.80c to 3.24c
Philadelphia*	2.70c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.15c
Cleveland	2.25c to 3.00c
Detroit	3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles lcl.	3.00c
New York	2.95c to 3.10c
Philadelphia	2.85c
Pittsburgh	2.75c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia	2.40c to 3.00c
Pittsburgh	3.00c
Portland	2.90c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.10c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York†‡	3.30c
New York†‡ (floor)	5.05c to 5.10c
Philadelphia	2.40c to 3.00c
Phila., 3/16-in.	2.60c to 3.20c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

No. 10 BLUE ANNEALED

Baltimore	3.45c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.70c
Houston	3.90c
Los Angeles	4.00c
New York†‡	3.90c
Portland	3.75c
Philadelphia*†	3.15c
Pittsburgh**	3.00c to 3.10c
San Francisco	3.90c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.54c

No. 24 BLACK SHEETS

Baltimore	3.10c to 4.00c
Boston	5.00c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	3.90c
Cleveland	3.40c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York†††‡	3.70c to 3.80c
Philadelphia*†	3.85c
Pittsburgh‡	3.50c to 3.55c
Portland	4.90c
San Francisco	4.95c
Seattle	5.00c
St. Louis	4.10c
St. Paul	3.95c
Tulsa	4.34c

No. 24 GALVANIZED SHEETS

Baltimore	4.10c to 4.75c
Boston	5.85c
Buffalo	4.70c to 5.05c
Chicago	4.65c
Cincinnati	4.75c
Cleveland	4.25c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.30c
Los Angeles	5.30c
New York†††‡	4.25c to 4.50c
Philadelphia*†	4.60c
Pittsburgh‡	4.40c
Portland	5.50c
San Francisco	5.40c
Seattle	5.50c
St. Louis	4.95c
St. Paul	4.90c
Tulsa	6.50c

BANDS

Baltimore	3.85c
Boston	4.015c to 5.00c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3 65c
Detroit	3.65c
Ft. Worth	4.40c
Houston	3.65c
Los Angeles	4.15c
New York†‡	4.00c
Philadelphia*	3.25c
Pittsburgh	3.60c
Portland	3.75c
San Francisco	4.10c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.50c to 4.66c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.25c
Cleveland	3.65c
Detroit	4.15c
New York†‡	4.50c
Philadelphia*	3.50c
Pittsburgh	4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats, squares
Baltimore	3.35c	3.85c
Boston	3.45c	3.95c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.50c	3.90c
Philadelphia*	3.35c	3.85c
Pittsburgh	3.60c	4.10c
Portland (a)	4.75c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a))	3.85c	.....
Tulsa	4.76c	5.26c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.00c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c
Flats and Squares	
Baltimore, New York, Phila.	6.60c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. ‡10 to 24 bundles. **25 or more sheets. *†50 or more bundles. †††Newark-Jersey City 4.00c on black and 4.70c on galvanized the more prevalent figures.

Pacific Coast

Quiet Period in Building Appears—Some Prospective Activity—Prices Are Steady

DEMAND for structurals is increasing at San Francisco and is somewhat less at Seattle. Various projects are developing for bids in the near future, promising more activity. No award has been made on the material for the Oakland utility district, which will require a large tonnage of steel. Prices are steady and show no sign of change.

San Francisco, Sept. 1.—(By Air Mail)—Demand for steel products is showing further improvement, although bookings this week were not heavy. The largest award of the week called for 860 tons of shapes for an apartment in Oakland, taken by the Pacific Coast Engineering Co. No action has been taken by the East Bay municipal utility district, Oakland, on its distributing system.

Pig Iron and Coke

Both sales and inquiries for foundry pig iron and coke this week were limited to unimportant lots and little of importance developed in the market. Prices remain unchanged.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	24.00 to 25.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Awards of concrete bars this week were not heavy and aggregated only 358 tons. The Deschutes river bridge in Oregon, calling for 160 tons, and the South Branch canal of the Kittitas project at Ellensburg, Wash., involving 105 tons, were placed with unnamed interests. Bids were opened this week on 210 tons for the West Stanislaus irrigation district at Westley, Calif. Pending business exceeds 4000 tons.

Only one plate award was placed during the week. This called for 200 tons for small tanks for the refining plant of Swift & Co. at Vernon, Calif., and was placed with the Lacy Mfg. Co. Tacoma, Wash., opened bids this week on 175 tons for a 51 and 54-inch riveted pipe line. Prices range from 2.20c to 2.30c c.i.f.

Structural shapes continue to be the most active steel product, and awards this week totaled 1490 tons, including 170 tons for the Deschutes river bridge at Maupin, Oreg. New and pending business exceeds 14,000 tons. Plain domestic material continues firm at 2.35c c.i.f.

Other Finished Material

The only cast iron pipe award reported during the week called for 202 tons for Phoenix, Ariz., and was placed with an unnamed interest. Bids were opened this week on 320 tons for Santa Ana, Calif., 258 tons for San Bernardino, Calif., and 147 tons for the improvement of Garnet street, San Diego. Pending business exceeds 50,000 tons, including 22,000 tons for the East Bay municipal utility district, Oakland, and 23,000 tons for Dallas, Tex. Edmonds, Wash., will open bids Sept. 4 for 1236 tons of 4 to 10-inch Class B pipe.

Seattle Buying Light

Seattle, Aug. 30.—Fewer new building projects of importance have developed the last fortnight and the August total is expected to be less than July. However, several large improvements are beginning to assume definite form and are to be up for figures soon.

Two major construction jobs scheduled for the fall include a 400-room addition to the Olympic hotel, costing $1,000,000, and an addition of five stories to the city-county building. Both of these improvements have been authorized.

While mill representatives stress lack of demand for big tonnages in this territory, considerable steel is being purchased in small lots for a variety of jobs. The total tonnage moving is said to be up to the average.

Pig Iron and Coke

There is a better tone in the foundry business, more activity being noted after a quiet summer period. Buying is not heavy, however, as plants are purchasing in small lots as required. Columbia iron has largely displaced foreign iron on this coast although small tonnages of Burn are being purchased. No. 1 Columbia is $26 for 3 per cent silicon. British coke is generally favored in this market, prices averaging $13.25 to $13.50.

Bars, Plates and Shapes

Mill prices remain unchanged, bars and shapes at 2.35c and plates 2.25c. While few contracts of more than 100 tons are being placed, there has been a steady run of small tonnages although this month it is noted that building operations are less active. The only award for reinforcing reported this week involved 100 tons for the Hooker chemical plant at Tacoma, booked by the Northwest Steel Rolling Mills.

No definite jobs, involving large tonnages of plates, are up for figures although some work is to be awarded in the near future. Seattle has appropriated $300,000 for 54-inch riveted steel pipe for the Beacon hill improvement. Plans are being drawn for an inverted syphon, 3150 feet long and 30 inches in diameter to be installed on an irrigation project near Chelan, Wash.

Tacoma has awarded to the Coast Line Shipbuilding Co., of that city, the contract to construct a 96-foot steel fireboat. The amount of steel involved is not stated.

Wallace Bridge & Structural Steel Co. has been awarded the contract for fabricating 130 tons of shapes for a precipitation building, a unit of the plant of the Pacific Coast Cement Co. under construction here. The Austin Co., Seattle, has contracts for an addition to the Boeing airplane plant, Seattle, the Hooker chemical plant, Tacoma, and warehouse and bag factory for the Columbia River Paper Co., Vancouver, Wash. Unstated tonnages of structurals are involved in these projects. Portland has authorized construction of a $100,000 viaduct at Vancouver avenue. Bids will be received Sept. 18 by the commissioners of Chelan county for a steel bridge over the Wenatchee river involving 40 tons of reinforcing and 124 tons of structurals.

Inquiry for pipe is improving. Several jobs involving considerable tonnages are pending for Seattle improvements. Bids are to be opened Sept. 4 by the Edmonds city council for a water system. About 500 tons of cast iron will be required.

Sheet and Tin Plate Mill Wages Unchanged

Youngstown, O., Sept. 4.—The bimonthly settlement of the Amalgamated association sheet wage base was made here this morning between Secretary Elias Jenkins of the independent manufacturers and officers of the Amalgamated association. Examination of the sales sheets of the affiliated sheet manufacturers for the past two months disclosed an average realized price of 3.00c for gages Nos. 26, 27 and 28. This average of 3.00c is unchanged from the preceding two-month period, and maintains the wages of sheet mill workmen at 25½ per cent above base for the September-October period. Following are comparisons of price averages for the periods designated:

July-Aug.	3.00c	unchanged
May-June	3.00c	unchanged
March-April, 1928	3.00c	unchanged
Jan.-Feb.	3.00c	unchanged
Nov.-Dec.	3.00c	—3 per cent
Sept.-Oct.	3.10c	+3 per cent
July-Aug.	3.00c	unchanged
May-June	3.00c	unchanged
March-April, 1927	3.00c	—3 per cent
Jan.-Feb.	3.10c	—4½ per cent
Nov.-Dec.	3.25c	unchanged
Sept.-Oct.	3.25c	unchanged
July-Aug.	3.25c	unchanged
May-June	3.25c	unchanged
March-April	3.25c	+1½ per cent
Jan.-Feb., 1926	3.20c	+3 per cent

In the year 1388. ironmaking ranked as first of the 32 trades represented in Liege, Belgium, and included locksmiths, armorers, cutlerers, etc.

River Trip Arranged as Part of Meeting

The program committee for the joint meeting of the Machine Shop Practice section of the American Society of Mechanical Engineers and the Machine Tool congress in Cincinnati, Sept. 24-27, has arranged sessions of particular interest to machine tool builders and users. Sessions will be held Monday and Tuesday, Sept. 24 and 25, on board the river steamer CINCINNATI which leaves Cincinnati Monday afternoon for Ashland, Ky., where the engineers and their guests will visit the continuous sheet mill of the American Rolling Mill Co. The boat will return Tuesday afternoon and another technical session will be held in Hotel Sinton, Cincinnati, on Wednesday morning. Papers to be read at the various sessions include:

Tuesday evening, Sept. 25

"Theories of Bearing Lubrication," by Forrest E. Cardullo, chief engineer, C. A. Gray Co., Cincinnati.

"Grooving Bearings for Machine Tools," by G. B. Karelitz, research department, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Wednesday morning, Sept. 26

"Automotive Industry," by L. L. Roberts, mechanical superintendent, Packard Motor Car Co., Detroit.

"Electric Industry," by J. R. Weaver, superintendent of manufacturing equipment, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

"Agricultural Implement Industry," by Max Sklovsky, chief engineer, Deere & Co., Moline, Ill.

"Railroad Industry," by L. A. North, shop superintendent, Illinois Central Railroad System, Chicago.

Foremen Conferences To Be Held in Indianapolis

Indianapolis, Sept. 4.—To develop and direct a systematic program of foreman training, through regular foremen conferences in the plants of the Indianapolis members of the National Metal Trades association and other interested metal trades shops, a three-week course of daily classes each afternoon for a period of two and one-half hours, will begin here Oct. 15. No cost is attached to these classes, and all Indianapolis companies employing metal trades operatives of any character and having eight or more foremen and department heads, are being invited to participate by sending one and not more than two company representatives.

The purpose of the course is to teach member companies of the association and other interested metal trades firms how to use the 52 lessons on "Practical Foremanship" which the association's national committee on industrial education prepared some time ago, and which now are in operation in the plants of 600 of the association's 1200 shops throughout the country. The conferences will be held under the auspices of the committee and the Indianapolis branch of the association.

Warehouse Needs Big

(*Concluded from Page* 603)

generally are unchanged.

Philadelphia jobbers have advanced cold finished steel $2 per ton, now quoting 3.95c on flats and squares and 3.45c on rounds. August showed a substantial increase in sheet and tin plate bookings by jobbers but a decrease in most heavy lines.

While buying from iron and steel warehouses in Detroit has been spotty and some industries are not taking out their quotas, business in August was as good as in any month this year. Mill deliveries are slowing up and some warehouses expect to benefit this month from this condition. Warehouse prices generally are unchanged.

Warehouse products at Cincinnati closed the month with a slight slump in demand with movements in certain lines fully up to those of June and July, which were records for those months in Cincinnati. Bars, structurals and plates were in greatest demand and scored large shipments. Cold finished steel was in good demand and moved fairly well. Prices are now fairly well established and business quite satisfactory considering general business conditions.

Distributors of iron and steel goods from stock at St. Louis report August sales above expectations, with the movement of certain materials in volume which would be considered good at any time of the year. Purchasing of sheets has been brisk, with blue annealed leading in activity. Steady betterment in demand for galvanized material was noted, particularly from the rural areas. Corrugated roofing and siding are in good call. Tin plate continued active.

New Pig Iron Prices Firm

(*Concluded from Page* 591)

eral fair sized sales. The melt in August was substantially as large as in July and September is not expected to develop any market variation. It is estimated that consumers' stocks in Michigan do not average two weeks and some important producers are operating on a margin of less than one week.

Philadelphia, Sept. 4.—Good business features the pig iron market here. A large number of consumers have placed substantial tonnages of foundry iron covering their requirements over the remainder of the year. The market has not yet become established at $20, base, eastern Pennsylvania furnace. The only effect of the recent price advance is to eliminate in some cases equalizing with lower freight rates in the present market. Eastern Pennsylvania foundry iron is firmer at $19.50, base, nearest furnace. The past week's business included sales of 8000 to 9000 tons of basic at unchanged prices; also several moderate sales of low phosphorus iron at unchanged prices.

The Pulaski furnace, the only one producing pig iron in Virginia, will be blown out Sept. 21, not to resume for six to eight months. This furnace has about 50,000 tons of foundry iron which will be liquidated before any further production. Warwick Iron & Steel Co. stockholders will meet in Philadelphia, Sept. 12, to pass on recommendation that directors be authorized to offer two blast furnaces at Pottstown, limestone quarry at Myerstown, and other assets for sale. S. L. Freeman & Co., Philadelphia, now are preparing details of the sale. The Brooke furnace at Birdsboro, Pa., is slated to be blown out the last week in September.

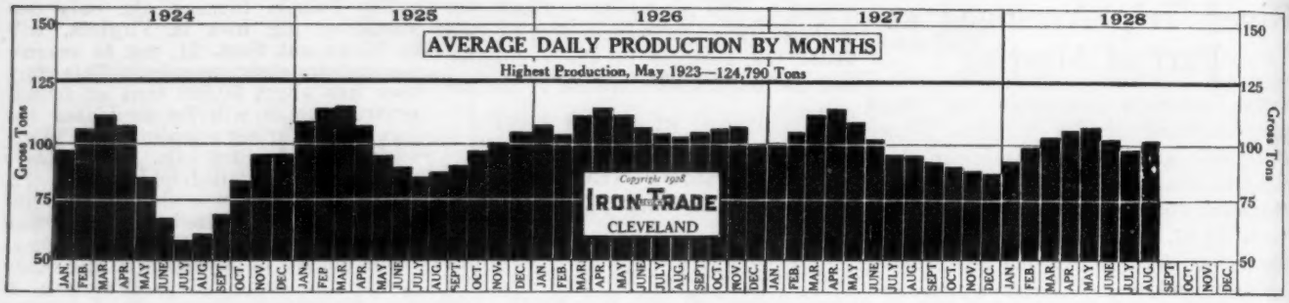
St. Louis, Sept. 4.—While the recent advance in prices has had a tendency to slow down purchasing of pig iron, the market is in a decidedly healthy condition. The leading local producer reports August shipments the largest for any month this year, and well in excess of the August, 1927, total. This same producer reports that its customers are ordering out their full September quotas. Sales during the week totaled approximately 3500 tons, of which 2600 tons was booked by the St. Louis Gas & Coke Corp.

The price situation is firm at the recent advances. Southern iron is offered here on a basis of $16.25, Birmingham, equal to $20.67, delivered. This figure is bettered by combined river and rail delivery. The leading local interest quotes $19 to $19.50, f.o.b. Granite City.

Birmingham, Ala., Sept. 4.—Foundry iron is being sold fairly well at the advanced prices. Only one consumer has intimated it has decreased its melt, while several others are melting steadily, with expectations of continuing for some time. Furnace interests are selling through the remainder of the year at $16.25, base, Birmingham.

Toronto, Ont., Sept. 4.—While the greater part of current pig iron demand is for spot delivery of small lots, a few melters close for 500 to 1000 tons for delivery up to the end of October. Specifications are appearing for foundry and malleable iron for delivery to the end of the year. Total sales for the week amounted to close to 2500 tons. Prices are strong, but unchanged.

Chicago, Sept. 4.—Pig iron merchant stocks have been materially reduced by recent increases in shipments and the heavy buying movement of the past four weeks. Two merchant furnaces probably will be blown in soon, No. 4 Iroquois stack at the end of this week and the second Federal stack to resume when repairs are completed within ten days. This will make all available merchant stacks active for the first time in many months. It is estimated August sales of foundry and malleable iron were from 250,000 to 300,000 tons. Both July and August were record sales months in this district. Individual buying recently is considered conservative. Many melters, however, covered for the remainder of the year before the price was advanced to $18, base, furnace. The Sloss, Sheffield Iron & Steel Co. has advanced its price 75 cents to $16.25, base, Birmingham.



Iron Production Makes Small Gain

DESPITE the fact that fewer blast furnaces were operating on Aug. 31 than were operating on July 31, the August production of coke pig iron showed a small increase over the tonnage of the previous month. Both August and July had 31 days, nevertheless, the output of iron in August was 3,136,008 gross tons and in July, 3,072,711 tons, the gain being 63,297 tons. Active furnaces on the last day of August totaled 182, against 185 at the close of July. On June 30, operating stacks totaled 189.

Average daily production of pig iron in August was 101,161 gross tons, which compared with the 99,120-ton daily rate of the preceding month, was an improvement of 2041 tons per day, or 2.06 per cent. The August rate fell only a little short of the June rate of 102,745 tons per day. Incidentally the August daily rate showed a gain over the July rate for the first time since 1925. For the first eight months of 1928, pig iron production has totaled 24,719,182 tons, against 25,334,526 tons in the corresponding period of 1927. The average daily rate for the year thus far has been 101,308 tons against the 104,257-ton rate for the eight months of last year.

Of the 182 blast furnaces active at the end of August, 37 were merchant and 145 were nonmerchant or steelworks stacks. The totals for July were 38 and 147, respectively. During August, 1 merchant stack was blown in and 2 blown out; of the nonmerchant class, 5 were blown in and 7 blown out.

Among furnaces blown in during the month were: In Ohio: Grace, Youngstown Sheet & Tube Co. In Pennsylvania: Monongahela No. 2, National Tube Co.; Cambria and Bethlehem D, Bethlehem Steel Co.; Donora No. 1, American Steel & Wire Co. In Alabama: Vanderbilt No. 2, Woodward Iron Co.

Stacks blown out were: In Ohio: Central D, American Steel & Wire Co.; Toledo A, Toledo Furnace Co. In Pennsylvania: Cambria F and Bethlehem A, Bethlehem Steel Co.; Isabella No. 1, Carnegie Steel Co. In Alabama: Woodward No. 3, Woodward Iron Co.; Bessemer No. 2, Tennessee Coal, Iron & Railroad Co. In Indiana: Gary No. 10, Illinois Steel Co. In Colorado: One Minnequa, Colorado Fuel & Iron Co.

Rate of Operation

(Relation of Production to Capacity)

	1928†	1927*
August	74.4	67.6
July	73.2	67.7
June	76.0	73.2
May	78.3	77.7
April	78.0	81.2

***Based on coke pig iron capacity of 51,379,400 gross tons as of Dec. 31, 1926. †Based on capacity of 49,605,720 tons as of Dec. 31, 1927. Capacities computed by American Iron and Steel institute.**

MONTHLY PRODUCTION

	1928	1927	1926	1925
Jan.	2,855,515	3,101,346	3,319,789	3,372,207
Feb.	2,898,668	2,940,604	2,923,850	3,214,067
Mar.	3,199,175	3,482,107	3,458,171	3,571,422
April	3,181,975	3,424,377	3,438,805	3,211,235
May	3,292,790	3,391,067	3,477,820	2,933,907
June	3,082,340	3,089,726	3,232,478	2,679,045
July	3,072,711	2,954,625	3,224,663	2,665,262
Aug.	3,136,008	2,950,674	3,200,723	2,707,171
Total 8 mos.	24,719,182	25,334,526	26,276,299	24,354,316
Sept.	.....	2,782,500	3,163,269	2,725,885
Oct.	.....	2,812,015	3,334,206	3,017,889
Nov.	.....	2,661,863	3,237,992	3,023,257
Dec.	.....	2,698,208	3,089,175	3,249,057
Total	.....	36,289,112	39,100,941	36,370,404

AVERAGE DAILY PRODUCTION

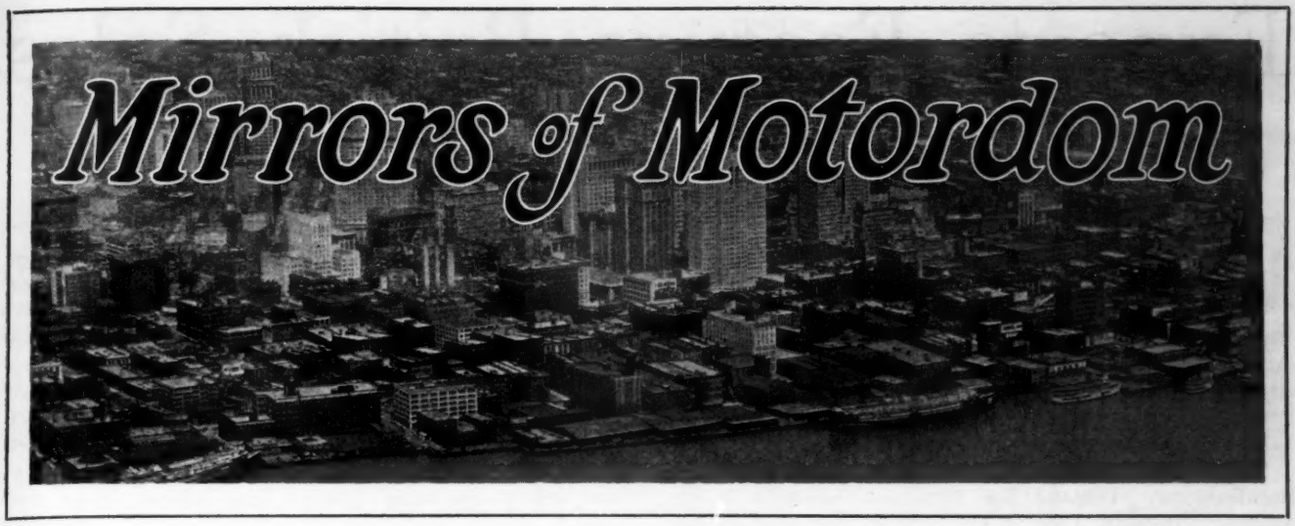
	1928	1927	1926	1925	1924
Jan.	92,113	100,043	107,039	108,781	97,273
Feb.	99,954	105,021	104,423	114,788	105,987
Mar.	103,199	112,326	111,554	115,207	111,787
Apr.	106,066	114,146	114,627	107,041	107,537
May	106,219	109,388	112,187	94,642	84,515
June	102,745	102,991	107,749	89,301	67,427
July	99,120	95,311	104,021	85,976	57,531
Aug.	101,161	95,183	103,249	87,328	60,741
Sept.	.....	92,750	105,442	90,862	68,454
Oct.	.....	90,710	107,555	97,351	79,419
Nov.	.....	88,728	107,933	100,775	83,832
Dec.	.....	87,039	99,651	104,808	95,367
Ave.	101,308	99,422	107,126	99,645	84,908

DIVISIONS OF PRODUCTION

1927	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	745,766	2,355,580	40,330
Feb.	642,804	2,297,800	31,605
March	762,354	2,719,753	35,483
April	735,385	2,688,992	37,657
May	701,582	2,689,485	38,531
June	714,268	2,375,458	39,764
July	736,707	2,217,918	35,768
Aug.	667,104	2,283,570	30,383
Sept.	651,246	2,131,254	26,712
Oct.	688,880	2,123,135	24,763
Nov.	652,237	2,009,626	24,372
Dec.	660,616	2,037,592	27,809
Total	8,358,949	27,930,163	393,177
1928			
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
March	597,106	2,602,069	34,587
April	586,045	2,595,930	33,599
May	596,664	2,696,126	38,466
June	589,127	2,493,213	38,628
July	584,611	2,488,100	42,230
Aug.	561,821	2,574,187	33,783

AUGUST PIG IRON PRODUCTION

	No. in blast last day of month		Total tonnage made		Totals	
	August	July	Merchant	Nonmerchant	August	July
Ohio	44	45	107,549	717,359	824,908	804,074
Pennsylvania	60	59	102,929	878,436	981,365	907,761
Alabama	16	17	103,125	83,608	186,733	187,506
New York	11	11	54,947	120,361	175,308	177,715
Illinois	15	15	86,050	222,783	308,833	303,103
Colorado	2	3				
Indiana	13	14				
Maryland	5	5	16,976	420,171	437,147	458,200
Virginia	2	2				
Wisconsin	0	0				
Kentucky	2	2				
Massachusetts	1	1				
Tennessee	2	2	37,712	81,634	119,346	119,294
Utah	1	1				
West Virginia	3	3				
Michigan	3	3				
Minnesota	2	2				
Missouri	0	0	36,831	30,297	67,128	71,204
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states	....	....	15,702	19,538	35,240	43,854
Total	182	185	561,821	2,574,187	3,136,008	3,072,711



Ford Crosses 4000; Debut of Chevrolet Six Nears

* * * * * * * * *

Stamping Makers Oppose Reduced Sheet Discount

Detroit, Sept. 4

BY ALL reasoning and seasonal trends the automotive industry should be relaxing and settling into the calm, peaceful valley which normally lies between the late summer bulge in production and preparations for the January shows. But nothing is orthodox this year, few signs of easiness are discernible, and production promises to go into the fall on the high plateau that has described 1928 thus far.

August shipments of finished steel into the Detroit area were only fractionally lower than those of July. Specifications for September delivery are substantially on a parity with August. Considering that Ford is steadily creeping up, Buick, Chrysler and Graham-Paige also are far behind their orders, Oakland-Pontiac, Packard and Cadillac-LaSalle are getting away to a good start on new models and Hudson-Essex, Dodge and Hupp are about holding their own, September has rarely opened more auspiciously.

* * *

THIS appraisal of the situation omits Chevrolet, for many months the mainstay of automobile production. For some time it has been rumored that Chevrolet was holding back a six-cylinder engine against the day when Ford production really attained proportions. With Chevrolet about 1000 cars off its daily record of 5500 and Ford now at 4000 daily, including 600 at the Canadian plant, that time approaches. Chevrolet is sharply curtailing, and by late September Ford probably will again lead the procession.

The new model, for which Chevrolet is slowing down, is generally understood to be a Six, to sell at about $25 more than the present Four, which is to be discontinued. It is to be in production about Oct. 15. Since the present chassis was engineered sufficiently strong for a six-cylinder engine, the new power plant probably will be the most radical departure. Henceforth Chevrolet may be expected to stress six-cylinder qualities and General Motors will leave the four-cylinder field to Ford, Whippet and Star.

* * *

FEELING runs high in Detroit over the efforts of sheet producers to Volsteadize their discount by making one-half of 1 per cent the dividing line between customers intoxicated with cash and those totally abstaining from meeting their accounts promptly. What amounts to an Association Against the Discount Amendment was organized recently by purchasing agents for body and stamping manufacturers, and the following letter has been dispatched to the mills:

There has come to our attention a proposed change in the discount rate now being extended by manufacturers of steel products, from 2 per cent ten days to ½ of 1 per cent ten days or 30 days net.

May we, at this time, advise you that this revision of discount rates is not at all acceptable to us, and we seek your co-operation in this instance, to allow us to continue to look to your good company for a substantial share of our steel tonnage.

The body and stamping manufacturers believe they have a peculiarly good case because they in turn grant a 2 per cent cash discount to their customers. To this the rejoinder of the mills is that one industry need not perpetuate what it believes to be an uneconomic practice merely because another one does. Automobile manufacturers, who get what amounts to spot cash for their product as it rolls off their assembly lines and in some cases levy a drive-away and advertising charge, have said little, but have not applauded the move.

One reason why the proposed revision hurts is that many purchasing departments have claimed the 2 per cent as a price concession instead of permitting it to accrue to accounting departments as compensation for prompt payment. Accordingly, the records would show that the purchasing departments were paying 2 per cent more for their sheets.

The strategy of the opposition, as the quoted letter indicates, is to find the weak spots in the ranks of the sheetmakers before Oct. 1 and whip the remainder into line.

* * *

SPEAKING of the Volstead act, that $25,000 prize which W. C. Durant has offered for the best 2000-word essay on how to enforce prohibition again exposes the differing currents within the General Motors Corp. It will be recalled that John

(*Concluded on Page* 616)

Exports Feature British Sales

Locomotives Booked for South America and South Africa—India Purchasing Various Steel Products—Tin Plate Inquiries for 1929 Appear—American Consumers Inquiring for Pig Iron—Belgian and French Sales Active

LONDON, Sept. 4.—(*By Cable*)—British steel orders are more numerous, but small. Purchases for shipment to India feature the market. Important contracts for locomotives for South Africa and South America also are noted. Mills making galvanized sheets are well booked; they report considerable competition from Belgian sources in India. Demand for tin plate is steady. Inquiries extend into 1929.

The Midland pig iron market is dull, and stocks are accumulating. Demand for Northeast hematite is improving. Dorman, Long & Co. have started another furnace. Some pig iron continues to be exported from Middlesbrough. Inquiries for pig iron are being received from America and the Continent by Barrow furnaces.

A report from Paris states French domestic business is expanding, while exports are satisfactory. Inquiries are being received from Japan and South America. Prices are believed to be reaching maximum. Berlin reports quieter conditions. Beams are being offered for export at £4 17s 6d ($23.69). Belgian markets are active. Good orders are being received from China, Japan and India.

Small Lots Making Busy British Steel Market

BIRMINGHAM, Eng., Aug. 24.—(*European Staff Service*)—Business on a large scale is conspicuously absent but many small contracts make useful additions to order books. The annual race week holiday has put a stop to work in the Middlesbrough district, most rolling mills being closed for a week. Dorman Long announce that their Clarence works will work through but will shortly afterwards shut down for about three weeks. The closing of two furnaces by Palmers Shipbuilding & Iron Co. has to be set against the reopening of two by Dorman Long, so that the number operating on the northeast coast, 29, will remain unchanged.

Sterling $4.85

Manufacturers are looking forward to more activity after the holidays. Midland merchants report poor demand for all brands of pig iron but the market has sufficient strength to maintain prices at the recent levels of £2 15s ($13.33) to £2 16s ($13.57) for Northamptonshire foundry and £2 19s ($14.31) to £3 ($14.55) for Derbyshire.

Iron and steel makers expect to benefit from increasing activity in rolling stock building. Prominence has been given to the order for 1000 all-steel wagons secured by the Metropolitan Carriage, Wagon & Finance Co., but other Birmingham yards have also been booking work which will enable them to face the winter with confidence. The Birmingham Railway Carriage & Wagon Co. has had a series of wagon-lit orders, chiefly for the Argentine, but 40 are for a French company, 32 all-steel second class coaches, 46 first class and 14 composition for Egypt. The Midland Wagon Co. is also understood to be busy but chiefly on repair work. It is understood that another order, this time for 400 all-steel wagons, is pending with South Africa and this will probably find its way into one or other of the

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, September 4	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$16.01	3 6 0*	$15.28	3 3 0	$15.28	3 3 0	$15.76	3 5 0
Basic	15.76	3 5 0	15.28	3 3 0	15.28	3 3 0	15.28	3 3 0
Basic-bessemer	16.73	3 9 0†	14.55	3 0 0	14.55	3 0 0	14.55	3 0 0
Hematite, Phosphorus 0.02-0.05	16.61	3 8 6	12.09	309*	.....	.....	.....	3 10 0
SEMIFINISHED STEEL								
Billets	$29.10	6 0 0	$23.77	4 18 0	$23.77	4 18 0	$23.77	4 18 0
Wire rods	41.23	8 10 0	29.10	6 0 0	29.10	6 0 0	29.59	6 2 0
FINISHED STEEL								
Standard rails	$37.59	7 15 0	$39.92	6 7 6	$30.92	6 7 6	$30.92	6 7 6
Merchant bars	1.55c	7 2 6	1.37c	6 1 6	1.37c	6 1 6	1.31c	5 19 0
Structural shapes	1.60c	7 7 6	1.08c	4 18 0	1.08c	4 18 0	1.09c	4 19 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.42c	6 8 9	1.42c	6 8 9	1.41c	6 8 0
Sheets, black, 24 gage	2.17c	10 0 0	2.39c	10 17 6	2.39c	10 17 6	2.19c	9 19 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	2.98c	13 11 3	2.98c	13 11 3	2.93c	13 6 0
Bands and strips	2.22c	10 5 0	1.55c	7 1 3	1.55c	7 1 3	1.43c	6 10 0
Plain wire, base	2.12c	9 15 0	1.54c	7 0 0	1.54c	7 0 0	1.60c	7 5 0
Galvanized wire, base	2.93c	13 10 0	1.98c	9 0 0	1.98c	9 0 0	2.01c	9 3 0
Wire nails, base	2.38c	11 0 0	1.62c	7 7 6	1.62c	7 7 6	1.65c	7 10 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 6.79	1 8 0

*Francs

Domestic Prices at Works or Furnace—Last Reported		Francs		Francs		Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.01	$17.20	440(2)	$16.26	585	$18.59 78
Basic pig iron	15.76	18.57	475(1)	15.01	540	20.97 88
Furnace coke	3.15	5.87	150	5.14	185	5.12 21.50
Billets	29.10	21.70	555	25.72	925	28.83 121
Standard rails	1.79c	1.48c	820	1.43c	1,100	1.51c 140
Merchant bars	1.57c	1.28c	710	1.33c	1,025	1.52c 141
Shapes	1.71c	1.17c	650	1.31c	1,010	1.49c 138
Plates, ship, bridge and tank	1.87c	1.54c	855	1.50c	1,150	1.71c 158
Sheets, black, 24 gage	2.28c	2.92c	1,620	2.33c	1,880	2.43c 225
Sheets, galvanized 24 gage, corrugated	2.90c	3.41c	1,895	3.87c	2,975	3.78c 350
Plain wire	2.12c	1.71c	950	1.95c	1,500	2.48c 230
Bands and Strips	2.22c	1.41c	785	1.69c	1,300	1.77c 164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £21 14s 0d (105.25) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Birmingham building yards.

The Metropolitan-Vickers Electrical Co. has secured three contracts totaling something like £750,000 for the electric railway equipment of the Metropolitan, Southern & New South Wales government railways. The latter which is for the Sydney suburban railways is part of a great electrification scheme covering over 400 miles of track and is connected with a gigantic new bridge now being built across Sydney harbor. Execution of these works will provide employment for English labor for the next twelve months.

The Continental position is substantially unchanged, but Birmingham merchants have had advices of several price adjustments during the week. Plates ¼-inch thick, which have not changed for some time, have taken a rise of 2s ($0.48). Billets are somewhat easier and blooms are 2s 6d dearer ($0.60). Foreign corrugated sheets, stationary for the last month, are dearer by 1s 6d ($0.36) and sheet bars have advanced by a similar amount. The changes are all trifling and are unlikely to affect the market. Steel bars and No. 3 Belgian iron are unchanged and are selling in only small quantities.

Constructional engineers are dealing in small quantities of steel but they have every prospect of big work being placed in the next few months after holidays are finished. The steel industry at Barrow is more active, having substantial orders for railway material both on home and foreign account.

In the galvanized sheet trade prices remain at £13 7s 6d ($64.86) to £13 10s ($65.46). Indian demand is still disappointing but other countries have shown more interest. The reduction on thin gages have helped matters and brought out more business. Since the decontrol of 30 gage £17 5s ($83.66) is the basis for that size.

A meeting of manufacturers was held at Swansea a few days ago when the price of tin plates was fixed at a new minimum of 18s ($4.36) per base box. Under the output restriction scheme it has been decided to work off the compulsory stop week early next month at some works. The tone is steady and prices range between 18s ($4.36) and 18s 3d ($4.42) according to date of shipment. Turnover continues fair with increased buying from South Africa which is developing its fruit canning industry. Inquiries have been in the market from Australia and the Far East.

Steel scrap is firm at £3 7s 6d ($16.36) delivered South Wales.

Belgian Steel Market Faces Better Prospects

BRUSSELS, Aug. 24.—(*European Staff Service*)—Iron and steel transactions in Belgium were practically stopped during the week of Aug. 15, which is a national holiday in Belgium and France. At the resumption of business and at the meeting of the Brussels iron and steel exchange of Aug. 22, unusual activity was registered and the tendency of prices was to rise to an extent which rather took dealers by surprise. It is expected, however, that this is only a spurt and quotations will not continue to increase, especially since German domestic business is calm and German makers are now competing seriously on export markets.

However, the satisfactory trend of prices during most of the summer is taken as an encouraging sign for fall business. Pig iron has remained calm and there is only comparatively small demand for foundry pig iron, which is quoted at 600 Belgian francs ($16.35), delivered, in the domestic market. Export demand is also quiet and the price is maintained at about £3 3s ($15.30) f.o.b. Antwerp. Semifinished steel has been active with a general rise of about 1s 6d (35.00c) per ton. A substantial tonnage of sheet bars has been sold to British sheet and tin plate makers and quoted prices have been freely accepted. Blooms have been quoted at £4 10s 0d to £4 14s 6d ($21.80 to $22.95) per ton, according to sizes; 2-inch billets £4 17s 6d ($23.55) and sheet bars £4 18s 6d ($23.95). For merchant bars the prices are nearing £6 ($29.05) per ton, f.o.b. Antwerp, and it is reported that contracts have been negotiated at this price. Beams are quoted at £4 18s 6d ($23.95) for normal sizes and £5 ($24.30) for British sizes. Wire rod is quoted at £6 ($29.05).

It is reported that the German works have approached French and Belgian groups with a view to the organization of sales of finished products for export. It is explained that this movement is due to some anxiety as to the competitive activities of the new export organization in America. However, according to latest reports received from the French and Belgians, they do not seem to be much attracted by the proposition.

German Market Encounters Severe Slump

BERLIN, Aug. 25.—(*European Staff Service*)—A marked distinction is now predominant in the German iron market, between foreign and domestic business. While the latter suffers from the slackening tendency of economic conditions in this country which, of course, results in fewer purchases of iron and steel, export business is rather lively in accordance with the revival registered abroad. With regard to foreign sales hopefulness governs among German steelmasters, who are hoping that business will continue to improve. Foreign sales in June were 453,000 metric tons, against 398,000 tons in May, the former being the highest figure reached for a considerable period. The following table reflects German imports and exports, in metric tons:

1928	Imports	Exports
Jan.	262,000	363,000
Feb.	240,000	391,000
March	248,000	435,000
April	246,000	413,000
May	186,000	398,000
June	177,000	453,000
Jan. to June, 1928	1,361,000	2,453,000
Jan. to June, 1927	1,249,000	2,434,000

These figures show the tendency to replace slackening domestic sales by increasing exports. In June a marked increase was registered in sales of railroad material for permanent way construction, due to greater demands from British India, South Africa, and the Argentine Republic. Also, semifinished products were shipped abroad in greater tonnages, while foreign sales of merchant bars and blooms have increased. The present price of merchant bars is about £5 18s ($28.60), or higher, and some producers decline to sell on this level, expecting still higher prices, and stocks of domestic consumers and traders are far below normal. Among the principal buyers are South America and the Far East, while the Dutch East Indies are ordering fair quantities.

Reported foreign shipments of various wire products are satisfactory and large tonnages, mainly plain wire, are being sold to South America and Holland. Wire-rod makers have unfilled orders on hand, of about five to six weeks standing, while producers of merchant bars are asking a delay of about eight weeks.

Some German railroad constructors have booked orders abroad; the Philipp Holzmann Co. is to construct a railroad for the Colombian government while the Siemens Bauunion will build another Colombian railroad. Also, German constructors have the monopoly for building railroads in Afghanistan.

Production of pig iron in July, computed per working day, lagged behind the June figure by another 2 per cent, while manufacture of raw steel exceeded that of the previous month, although the latter was about 4 per cent less than in July, 1927. Various rolling mills are compelled to work on a short time basis, including the sheet mill of the Hoerder Verein, which belongs to the United Steel Works group. Owing to the United Steel Works requiring less iron ores they have now discontinued purchases from the Alpine Montan Co.

German locomotive makers are suffering from a heavy crisis, occupation of the shipyards is decreasing, and building activity is slackening owing to lack of foreign funds. As a result domestic demands for steel are poor and the outlook unfavorable.

Subjects Announced for Program of Meeting

The program for the meeting of the institute of metals division of the American Institute of Mining and Metallurgical Engineers, which will be held during the week of Oct. 8 coincident with the meetings of the American Welding society and the American Society for Steel Treating, has been announced. Registration will be at the headquarters at Benjamin-Franklin hotel, at 9 a. m. on Tuesday and the following sessions will be held:

Tuesday Morning, Oct. 9

Technical session. R. S. Dean, chairman: P. D. Merica, vice chairman.
"Gases in Casting Copper," by O. W. Ellis.
"Diffusion of Zinc into Copper," by S. L. Hoyt.
"Less Common Elements in the Electrical Industry," by T. S. Fuller.
Papers on temperature coefficient of Brinell measurements and hardenable copper and silver alloys.

Wednesday afternoon. Oct. 10

Joint session with the American Society for Steel Treating: Symposium on Metallography, Dr. Zay Jeffries, chairman; Charles McKnight, vice chairman.
"Treatment and Structure of Magnesium Alloys," by John A. Gann.
"Notes on Smoothing and Etching," by H. B. Pulsifer.
"X-Ray Study of Cold Work and Annealing," by Ancel St. John.
"Tempering of Steel," by F. F. Lucas.
"Neumann Bands in Ferrite," by C. H. Mathewson.
6:30 p. m. institute of metals division dinner at the Benjamin Franklin hotel.
Speaker: Dr. F. M. Becket, vice president, Union Carbide Co.
Subject: Chromium Alloys.

Thursday Morning, Oct. 11

Technical session at hotel. E. H. Dix Jr., chairman; Sam Tour, vice chairman.
"Effect of Cold Rolling and Heat Treatment upon the Physical Properties of Britannic Metal," by B. Egeberg and H. B. Smith.
"High Strength Gold Alloys for Jewelry," by E. M. Wise.
"Stability of Aluminum and Magnesium Casting Alloys," by A. J. Lyon.
Papers on permanent mold casting, vacuum method for the casting metal, and others.

Bituminous Coal Meeting Program Announced

Twelve major topics for discussion at the second international conference on bituminous coal to be held under the auspices of the Carnegie Institute of Technology, Pittsburgh, Nov. 19-24, are tentatively announced by Dr. Thomas S. Baker, president of the institute and chairman of the congress. About 100 engineers and scientists representing 15 nations already have accepted invitations to speak or to send papers to the congress. Nearly 60 per cent of the papers will be delivered by representatives of countries other than the United States. The following discussions will receive close attention: Fixed nitrogen; liquefaction of coal; low temperature distillation; high temperature distillation; power from coal; coal tars and oils; complete gasification of coal; origin of coal; coal washing; pulverized coal; catalysts and general aspects of the bituminous coal industry.

Many Sessions Scheduled for Fuels Meeting

Registration headquarters at the second national fuels meeting, Cleveland, Sept. 17-20, at the Cleveland hotel, will be open on the morning of Monday, Sept. 17. Thomas T. Baker, president of Carnegie Institute of Technology, Pittsburgh, will deliver the official opening address at 11 a. m. The first technical session will be held on the afternoon of Sept. 17 and will consist of papers and discussion on fuel characteristics and kindred subjects. Sessions on industrial applications of fuels, heat transfer and powdered fuel will mark the second day's activities. The remaining two days will be occupied with sessions on refractories, marine practice, fuel problems and smoke abatement. A number of inspection trips have been arranged to power stations and manufacturing plants in the Cleveland district.

Convention Calendar

Sept. 5-22—Fourth Machine Tool and Engineering exhibition. To be held at Olympia, London, England.

Sept. 10-11—American Manganese Producers association. Annual meeting at Mayflower hotel, Washington. J. Carson Adkerson, Woodstock, Va., is president.

Sept. 17-20—American Society of Mechanical Engineers. Second national fuels meeting at Cleveland hotel, Cleveland. William G. Christy, 511 Locust street, St. Louis, is secretary.

Sept. 20-21—American Electrochemical society. Fall meeting at Kanawha hotel, Charleston, W. Va. Dr. Colin G. Fink, Columbia university, New York, is secretary.

Sept. 24-27—American Society of Mechanical Engineers. National machine shop practice meeting at Cincinnati. Carlos de Zafra, 29 West Thirty-ninth street, New York, is secretary.

Sept. 24-Oct. 3—Iron and Steel institute (British). Autumn meeting in Bilbao, Spain. G. C. Lloyd, 28, Victoria street, London, S. W. 1, is secretary.

Oct. 1-5—National Safety council. Seventeenth annual safety congress in New York. W. H. Cameron, 108 East Ohio street, Chicago, is managing director.

Oct. 8-12—American Society for Steel Treating. Tenth annual convention at Benjamin Franklin hotel and National Metal exposition at Commercial Museum, Philadelphia. W. H. Eisenman, 7016 Euclid avenue, Cleveland, is secretary.

Oct. 8-12—American Welding society. Annual fall meeting at Bellevue-Stratford hotel, Philadelphia. Miss M. M. Kelly, 33 West Thirty-ninth street, New York, is secretary.

Oct. 8-12—American Institute of Mining and Metallurgical Engineers. Meeting of institute of metals division at Benjamin Franklin hotel, Philadelphia. W. M. Corse, 810 Eighteenth street, Washington, is secretary.

Oct. 11-13—American Gear Manufacturers association. Semiannual meeting at Hotel Statler, Buffalo. T. W. Owen, 3608 Euclid avenue, Cleveland, is secretary.

Oct. 15-18—National Hardware Association of the United States. Thirty-fourth annual convention at Marlborough-Blenheim, Atlantic City, N. J. George A. Fernley, 505 Arch street, Philadelphia, is secretary.

Manganese Producers to Hear Papers

Tentative program arrangements have been made for the first annual convention of the American Manganese Producers association at the Mayflower hotel in Washington, Sept. 10-11. J. Carson Adkerson, president of the association will welcome the delegates at the first session on Monday morning, Sept. 10. Other sessions will be held Monday afternoon and Tuesday morning and afternoon. An informal dinner has been arranged for Monday evening at which Major Roger W. Taylor of the war department will deliver an address on "Strategic Minerals." Some of the papers to be presented at the various sessions are as follows:

"Use of Manganese in Fertilizer," by Dr. Oswald Schreiner and Dr. J. J. Skinner, United States department of agriculture, Washington.
"Work of Minneapolis Station, Bureau of Mines, in Treatment of Manganiferous Iron Ores," by T. L. Joseph, superintendent, Minneapolis station, bureau of mines, Minneapolis.
"Manganiferous Iron Ore in Minnesota," by Carl Zapffe, manager of iron ore properties, Northern Pacific Railway Co., Brainerd, Minn.
"Types of Deposits, Their Use and Method of Treatment," by D. F. Hewett, United States geological survey, Washington.
"Types of Deposits in Virginia," by Dr. J. S. Grasty, geological engineer, Charlottsville, Va.
"Why Development of Domestic Manganese Industry Should Be Fostered," by A. H. Hubbell, *Engineering and Mining Journal*, New York.
"Grades and Character of Ore Desired by Market," by John J. Howard, E. J. Lavino & Co., Philadelphia.

Plant Inspection Trips Are Arranged

Several inspection trips have been arranged in connection with meetings of the American Society for Steel Treating, the American Welding society and the institute of metals division of the American Institute of Mining and Metallurgical Engineers in Philadelphia, Oct. 8-12. The Conowingo dam project, Midvale Steel Co., Curtis Publishing Co., Atwater Kent Mfg. Co., Leeds & Northrup Co., Westinghouse Electric & Mfg. Co., Autocar Co., Tinius Olsen Testing Machine Co., and Riehle Bros. Testing Machine Co., are a few of the plants in and around Philadelphia to which visits have been arranged during National Metal Week. Special trips will be made to the Carpenter Steel Co., Reading, Pa., and the Bethlehem Steel Co., Bethlehem, Pa. Many of those attending the National Metal exposition are expected to take advantage also of the opportunity to inspect the United States navy yard in Philadelphia.

In 1600 William Gilbert, a celebrated natural philosopher, discovered that when a magnet is heated to redness it loses its magnetism.

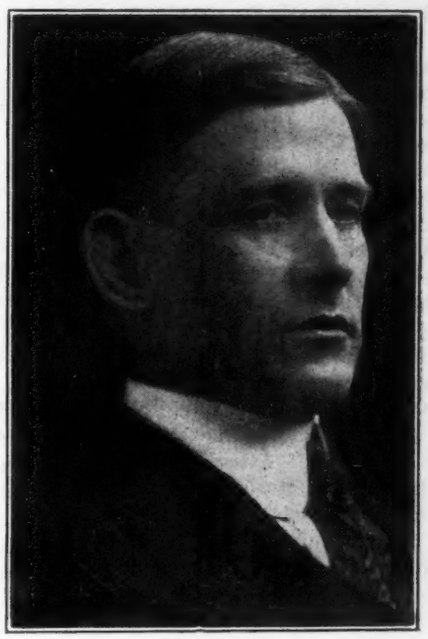
Industrial Men in the Day's News

Paul A. Ivy, Vice President, National Cast Iron Pipe Co.

PRACTICALLY his whole business career has been spent in the cast iron pipe industry, and he has risen steadily.

MAKING a noteworthy success as a pipe salesman, he organized a company of his own, with which he remained for 20 years.

HIS background of practical experience coupled with his intimate knowledge of his field equips him handsomely for his present position.



SPENDING practically his entire business career in one business—that of cast iron pipe—Paul A. Ivy has climbed higher and higher in the industry from one responsible position to another, and has recently been made vice president of the National Cast Iron Pipe Co., Birmingham, Ala., as noted briefly in IRON TRADE REVIEW, issue of July 26.

After leaving school, Mr. Ivy began inauspiciously as a clerk in a mercantile store. Not finding the work completely to his liking, he switched to another field of endeavor and became associated with the Dimmick Pipe Co., attaching himself to the company's sales forces. The Dimmick company operated the first pipe shop established in Birmingham.

His success as a pipe salesman was astounding and he rose rapidly in the esteem of the company. His aunt, Miss Charlotte Blair, was an official of the Dimmick company and, after a couple of years spent as a pipe salesman, Mr. Ivy joined forces with Miss Blair and established the American Cast Iron Pipe Co. During the construction of the plant for the American Cast Iron Pipe Co. Mr. Ivy acted as a timekeeper on the building crew. To show his ingenuity and diligence as a pipe salesman, when the time came for the American company to start production, a large batch of orders was already on hand—orders he had sold prior to the opening of the foundry.

Soon after the plant had got under way and production had assumed a normal plane, Mr. Ivy was made general manager and secretary of the company, a position which he retained for a number of years. Several years later he advanced a step further and assumed the more responsible position of vice president of the American company.

Mr. Ivy remained with the American company for 20 years, leaving the organization in 1927. Following his resignation, he became associated with James B. Clow & Sons, Chicago, and when the negotiations were instituted for the purchase of the National Cast Iron Pipe Co. at Birmingham, to Mr. Ivy was delegated the duty of arranging the details and handling the purchase.

Shortly after James B. Clow company made this purchase and the National Cast Iron Pipe Co. became a part of its organization, Mr. Ivy again returned to the cast iron pipe industry, this time to become vice president of the National company.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

BENJAMIN F. FAUNCE has resigned as superintendent of the car department of the Cambria plant of the Bethlehem Steel Co. and will be succeeded by Lindsay C. Pritner, who has been in the employ of the company for the past 37 years. Mr. Faunce is resigning to devote his time to the operation of the Brown-Fayro Co., manufacturer of machine boilers, coal and ore tipples, chutes, mine pumps, etc. at the Sheridan plant. Following his graduation from the University of Maine, Orono, Me., in 1901, he became associated with the Harrisburg Foundry & Machine Co., Harrisburg, Pa., later going with the Pennsylvania Steel Co. He was transferred to the Cambria division of the Pennsylvania company in November, 1901, and in the following year was made chief mechanical inspector of the plant. After leaving the Cambria company Mr. Faunce held several positions, but in 1919 he returned to Johnstown, Pa., as superintendent of the wheel plant, remaining with the Cambria plant until now. Mr. Faunce organized the Fayro Machine & Engineering Co., Johnstown, Pa., in 1921. The Fayro company was merged with the Brown Equipment Co. in 1925.

* * *

J. P. Dods has become associated with the D. L. Auld Co., Columbus, O., manufacturer of metal embossings, forgings, etc., as assistant to S. G. Brooks, vice president.

* * *

L. G. Lamborn, formerly with the Acme Wire & Iron Works, Detroit, has become sales manager for the Schieber Mfg. Co., Detroit, manufacturer of ornamental wire and iron work.

* * *

L. Gerald Firth, general manager, Firth-Sterling Steel Co., McKeesport, Pa., left on an European trip, a month of which will be spent at the Sheffield Works of the associated company, Thomas Firth & Sons Ltd.

* * *

C. L. Taylor has resigned his position as chief engineer of the Morgan Engineering Co., Alliance, O., to become vice president and head of the engineering department of the Aetna-Standard Engineering Co., of Youngstown, O. Mr. Taylor was with the Morgan company for 18 years.

* * *

L. A. Ferguson, for the past 10 years sales manager for the Ideal Power Lawn Mower Co., Lansing, Mich., has resigned to take over sales in the Chicago territory. C. S. Smith, secretary of the company succeeds Mr. Ferguson.

* * *

Gordon Urquhart, formerly production manager of an autobody plant in Lansing, Mich., has sailed for Europe to direct the establishment of an autobody plant for the General Motors Export Co. in Berlin, Germany. Mr. Urquhart also had been plant manager for the Lansing Body Co.

* * *

Edward A. Perry, for seven years associated with the Continental Radiator Corp., Dunkirk, N. Y., has been appointed assistant general purchasing agent for the National Radiator Corp., with which the Continental corporation is merged. Mr. Perry will be in the company's Johnstown, Pa., office.

* * *

C. E. Plummer has been made chief chemical and metallurgical engineer for the Robert W. Hunt Co., engineer, and will have his headquarters in the general offices of the company in Chicago. Mr. Plummer is a graduate of the University of Michigan, Ann Arbor, Mich., and also has degrees from the University of Minnesota, Minneapolis.

* * *

Archer A. Landon, president of the Landon Radiator Co., North Tonawanda, N. Y., and formerly identified with the American Radiator Co., will have supervision of the Landon plants of Crane Co., purchaser of controlling interest in the Landon company. Mr. Landon also will be in charge of the other plants which Crane company plans to establish in other parts of the United States and Europe.

* * *

Earle W. McMullen, for several years technical director of the Simmons Co., Kenosha, Wis., metal beds and furniture, has resigned to become general manager of the J. E. Burke Co., Fond du Lac, Wis., manufacturer of steel radiator covers and humidifiers. He is a graduate of Armour Institute of Technology, Chicago, 1909, and taught chemical engineering in the institute for several years.

* * *

H. C. Boulton recently has been appointed manager in the Northern Ohio district for the Pittsburgh Grinding Wheel Co., Rochester, Pa. Mr. Boulton's headquarters are at 1988 East Sixty-sixth street, Cleveland. The Pittsburgh agency in Cleveland formerly was located in the Fountain building in charge of C. G. Emery, who resigned to join the sales force of the Macklin Co., Jackson, Mich.

* * *

Richard A. Dana, formerly vice president and treasurer of Hodge & Dana Inc., New York, active in the vibrating screen field, now is with the Robbins Conveying Belt Co., to specialize in the engineering and sale of screens.

Foreign Trade Advisors Are Appointed

A wide variety of foreign trade interests, established in all important geographical sections of the country, are represented on the new foreign commerce department advisory committee of the chamber of commerce of the United States, which has just been announced by William Butterworth, president.

Included in the committee membership are: Henry D. Sharpe, president of the Browne & Sharpe Mfg. Co., Providence, R. I., former chairman of the committee and a member of the board of directors; Harry A. Black, president of the Black Hardware Co., Galveston, Tex.; Julius Goslin, president of Joubert & Goslin Machine & Foundry Co., Birmingham, Ala.; Henry H. Morse, sales export manager of the Florence Stove Mfg. Co., Boston; Harold F. Seymour, vice president of the Columbian Vise & Mfg. Co., Cleveland; L. P. Thayer, vice president of the International Harvester Co., Chicago.

The first meeting of the new committee will be at Hot Springs, Ark., Oct. 6, in connection with the chamber's conference of national councillors and presidents and secretaries of organization members.

Phone Interests Spend Added Millions

Additional expenditure of $11,042,000 for constructing new long distance telephone facilities during 1928 has been authorized by the American Telephone & Telegraph Co., according to an announcement by T. G. Miller, general manager of long lines department of that company. This increase, made necessary by the unusually rapid growth in the number of long distance calls during the first half of this year, brings the total appropriations for new construction during 1928 on the longer haul telephone circuits of the Bell system to $49,038,000, compared with $36,406,000 expended during 1927, the previous record year in construction.

Of the construction program about $32,400,000 will be spent on additions and extensions to long distance lines and more than $12,000,000 on central office equipment used in connection with long distance calls.

Estimates at the beginning of 1928 called for 1367 miles of new telephone cable construction, shattering all past construction records for a single year. This estimate is now further increased and the completion of nearly 1600 miles is planned by Dec. 31.

Jobbers Meet To Discuss New Sheet Discount

Pittsburgh, Sept. 4.—The metal branch of the National Hardware association meets here tomorrow, at the call of Chairman F. O. Schoedinger, Columbus, O., to discuss the proposal of sheet steel manufacturers to reduce their discount for cash in ten days from 2 per cent to one-half of 1 per cent.

At the morning session only jobbers will be admitted, while at the afternoon session and at luncheon mill representatives are to attend. The call for the meeting calls the discount change "one of the most serious matters which has ever come before the sheet steel industry."

With the Follansbee Bros. Co. advising its customers it would adhere to the new discount, all important sheetmakers are in line, it is believed.

Detroit, Sept. 4.—Body and stamping makers are expressing their opposition to the reduced sheet price discount in a letter, of which the following is a part:

"May we, at this time, advise you that this revision of discount rates is not at all acceptable to us, and we seek your co-operation in this instance, to allow us to continue to look to your good company for a substantial share of our steel tonnage."

Defends New Youngstown Rail-River Outlet

Washington, Sept. 4.—August G. Gutheim, counsel for the Pittsburgh, Lisbon & Western railroad, has filed an answer with the interstate commerce commission to exceptions filed by the Pittsburgh & Lake Erie, Baltimore & Ohio and Pennsylvania railroads protesting against the proposed report by C. V. Burnside, assistant director of the bureau of finance, regarding the extension of the lines of the Pittsburgh, Lisbon & Western and the purchase of the control of that road by the Montour railroad.

Mr. Gutheim contends that the industrial control of the applicants is not unlawful and constitutes no reason why their applications should be denied. He states also that all public interest in any rates to be established and charged by the Lisbon is amply protected by the commission's power to initiate, modify, establish or adjust rates generally and to fix just and reasonable maximum and minimum individual rates.

It is also pointed out by Mr. Gutheim in his reply that the law forbidding new railroad construction except upon a finding by the commission that the present or future public convenience and necessity so required does not preclude new construction merely because adequate transportation facilities are now in existence. The public convenience and necessity would not be adequately served by a river and rail route of common carriers utilizing the existing rail lines, he says.

Czech Steel Price Is Up 10 Per Cent

Washington, Sept. 4.—An increase of 10 per cent in the domestic price of steel has been announced by Czechoslovak steel producers, K. L. Rankin, Prague, assistant trade commissioner, advises the department of commerce. The new prices apply only to nonspecial steels. No changes in the prices of special steels is believed contemplated.

Sees Great Economies in Aluminum Plating

A successful method for the electrodeposition of aluminum on metal, long a problem for science, was announced by Prof. D. B. Keyes, of the University of Illinois, at a meeting of the American Chemical Society institute. By means of this aluminum plating, according to Professor Keyes, millions of dollars may be saved in a large field of industry ranging from the manufacture of kitchen pots to that of locomotives.

"In the production of power there is a large loss in the discard of 'economizer tubes' which can be avoided by using aluminum-coated steel, hitherto an impossibilty. By cutting the price of replacement of equipment in the 'cracking process' of fuel manufacture, through the new plating, gasoline prices may be lowered," he said.

Obituaries

HENRY CHALFANT, chairman of the board of Spang, Chalfant & Co. Inc., Pittsburgh, died Aug. 27 in Biarritz. Spang, Chalfant in January of this year absorbed the Standard Seamless Tube Co., becoming the third largest producer of pipe and tubes in the country. Through the purchase of a large block of J. H. Hillman's stock of the Oil Well Supply Co., the company acquired distributing outlets.

* * *

Eben Gibson Stranahan, 84, for many years secretary and treasurer of the Lake Erie Ore Co., died Aug. 29 at Cleveland. He had been retired from active business for several years.

* * *

Edward F. Pfischner, 29, assistant to the president of the E. T. Lippert Saw Co., Pittsburgh, died Aug. 28 following a short illness. He was a member of the Pennsylvania state senate.

* * *

Ernest J. Bossert, 59, manager of the Bossert Machine Co., manufacturer of machine tools and special machinery, died at his home in Cincinnati, Aug. 27. He had been in the machine manufacturing business for 20 years.

* * *

Frederick W. H. Cheek, 54, purchasing agent for the Fales Jenks Machine Co., Pawtucket, R. I., died at his home in that city. He was a native of London, but had lived in Pawtucket for more than half a century.

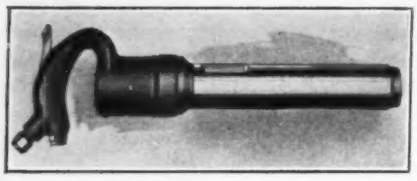
* * *

John E. Johnson, 45, treasurer of the O. & J. Machine Co., Worcester, Mass., died Aug. 30 at Toronto, Ont., while on an automobile tour. Mr. Johnson was born in Sweden, but had been a resident of Worcester for 26 years. He was active in the fraternal life of that city.

Riveting Hammers Built in Four Sizes

(*Continued from Page* 580)

feature of the hammer is the manner in which the handle is fastened to the barrel and kept in place by a spring locking device. The handle is threaded on to the barrel and the spring lock prevents the handle from unscrewing and applies tension to tighten it automatically. The valve box, located at the head of the barrel, has a solid upper end as shown in the accompanying illustration, which provides a positive compression chamber for the piston on its up stroke, acting to prevent the piston from striking the handle. The barrel of the hammer is made of special steel heat treated and ground to exact dimensions. An open-type outside-trigger handle is furnished as standard but closed or inverted-type handles can also be supplied.

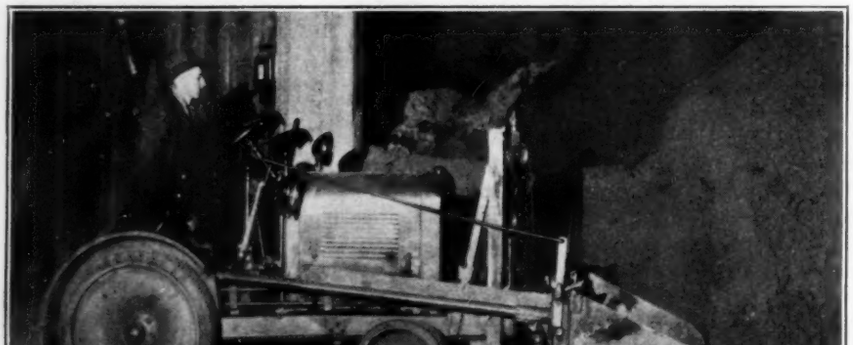


No. 226—Riveting hammer

Sand Diggers Useful for Foundry Clean Up

No. 227

Clark Tructractor Co., Battle Creek, Mich., recently has developed a new type of sand digger which consists of a hopper bucket 36 inches wide, with raising and lowering attachments, mounted on a gasoline tractor made by the same manufacturer. The digger is made in low and high-lift types, the dumping clearance of the low-lift type being 24 inches and the high-lift 75 inches. The bucket is attached to two booms, as shown in the accompanying illustration, and is raised and lowered by a piston and cable arrangement actuated hydraulically and located on the front end of the digger. The rear ends of the booms are bolted to steel castings which in turn circle the rear axle, thus providing for the thrust to be taken directly against the axle. Hydraulic power is furnished by a rotary-gear pump driven direct from the tractor power take-off. No brakes or clutches are used in operating the digger, the entire control being by one control handle.



No. 227—Sand digger with 9-foot bucket mounted on tractor

No. 228—Automatic arc welder

Designs Arc Welder for Tank Welding

No. 228

Lincoln Electric Co., Coit road and Kirby avenue, Cleveland, has designed an automatic arc welder for welding heads in small tanks such as range boilers and oil and gas tanks. The holding fixture of the machine consists of a rotating table driven by a small variable-speed motor, and a vertical support carrying a fixed steady rest and welding head. The welding head is flexibly mounted so that the length of the arc is under control of the operator. In making an edge weld, as shown in the accompanying illustration, no additional filler metal is used since the heat of the carbon arc fuses the edges of the cylinder shell with the flange of the dished head.

No. 229—Floodlight attachment

Flood Light Attachments Compactly Built

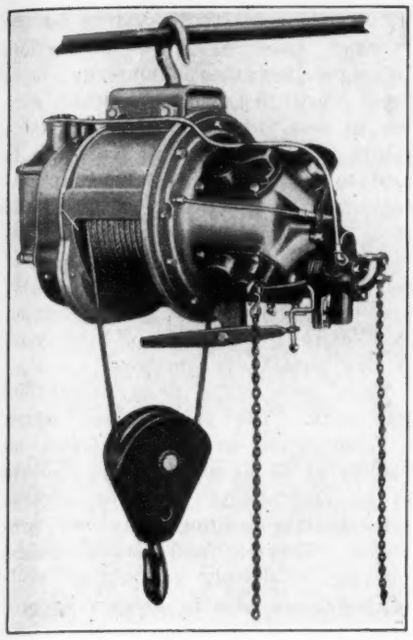
No. 229

Prest-O-Lite Co. Inc., 30 East Forty-second street, New York, recently has announced a floodlight attachment for use with small tanks of dissolved acetylene to provide a portable floodlighting unit facilitating outdoor night work where illumination is necessary. The reflector is 10 inches in diameter and can be removed by unfastening a single knurled nut. A new type of burner which, it is said, will not carbon up is placed at a fixed focal point and does not require adjustment. Universal adjustment of the lamp itself is obtained with one swing joint, as shown in the accompanying illustration.

Designs New Models of Metal Punches

No. 230

Whitney Metal Tool Co., 97 Forbes street, Rockford, Ill., recently has offered to the market two new models of deep-throat punches, one with a throat



No. 231—New air-motor hoist

depth of 18 inches and a capacity of a 2-inch hole through ⅜-inch thick iron and the other with a 24-inch throat depth and a capacity of a 2-inch hole through 16-gage iron. The punches are mounted on a truck-type base with ball bearing swivel casters 4 inches in diameter. Frames are made of 1-inch steel plates hot riveted together. The die holder is of the bolster-plate type and in cases where special dies are required these plates can be furnished with the special dies. When in operation the machine is held rigid by steel tripods bolted to the frame; these tripods lift up out of the way when the machine is to be moved. The punch is operated by a four-position handwheel with lever.

Increases Lifting Speed of Air Hoist

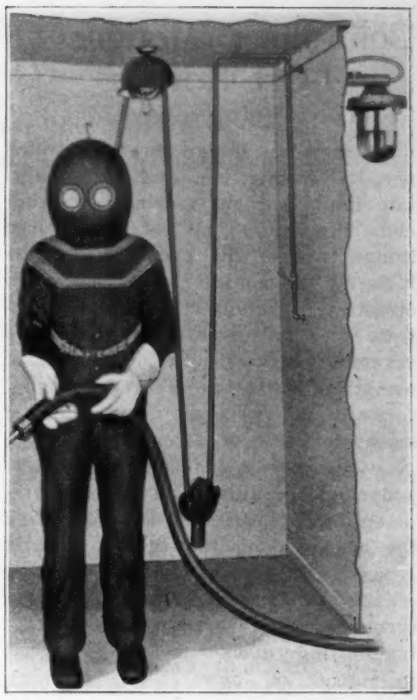
No. 231

Chicago Pneumatic Tool Co., 6 East Forty-fourth street, New York, has introduced a line of air hoists embodying several interesting features. The three sizes now available have a capacity of 2000, 3000 and 4000 pounds respectively and as may be noted in the accompanying illustration have an enclosed-type load block. The motor has four cylinders, is single acting and is claimed to be practically free from vibration. The hoists are compact and require only a small amount of head room. A balanced-type control valve is employed to secure smooth and positive control. The lifting speed has been increased considerably over other models of air hoists manufactured by that company. For example, the 1-ton size will lift 2000 pounds at a speed of 40 feet per minute. Other features include case hardened steel reduction gears, large size ball races for the crankshaft, asbestos brake lining and forced lubrication.

Ventilated Helmet Used in Sandblast Work

No. 232

Pangborn Corp., Hagerstown, Md., recently has produced a new type of sandblast helmet. Ventilation is accomplished by water-washed air, which is injected into the helmet under a pressure and with the volume controlled by the operator. The helmet rests entirely upon the shoulders with the head carrying no weight and being entirely free in movement. Convex sight screens are located to give a wide vision and celluloid liners protect the eye from dust or injury. The sight screens are held firmly in molded sockets and may be renewed easily. The helmet is made dust-tight and comfortable by a bifurcated sheep-wool lining. Shoulder and waist straps hold the helmet firmly in place and quick acting snaps make it possible to fasten and unfasten the straps without unbuckling. The helmet body is molded of high-graded rubber and is made to resist the action of any type of abrasives. Pulleys and counterweight take up the slack of the ventilation air line.



No. 232—Ventilated sandblast helmet

Would Standardize Color for Machine Tools

(*Concluded from Page* 579)

automobiles and typewriters have been dressed up in combinations of bright colors to suit the fancy of the purchasers, relatively few colors have found popular appeal for machinery.

Black has been the conventional machine tool color for a great many years, but recently various tones of gray have been used widely. This color harmonizes well with the interiors of machine shops and manufacturing plants and at the same time adds an air of life to the shop. Light grays have been developed which retain the good points of black and at the same time have the clean appearance of white. These finishes are special enamels and therefore are oil-proof and waterproof and are durable. Brown is another color which has found some use for machinery, although for large surfaces or whole machines it does not have the pleasing appearance of gray. It is used principally for trims and small parts.

The use of grays has caused machine tool builders much trouble, and, therefore, for very good reasons, the National Machine Tool Builders' association is collecting data preparatory to advocating a "standardized machine tool gray." Each tool builder has had a gray with which his product was finished. But inasmuch as these grays were not standardized, the purchaser of equipment in large quantities and from various builders soon found his shop to have a displeasing appearance as a result of the contrasting shades. The large buyer consequently began to specify machinery which he ordered to be finished in a definite shade of gray. To take the business, tool builders found it desirable to agree to the specifications.

The result was that the builder had to purchase small quantities of paint to meet the conditions of the sale. The unit cost of the paint was greater than that which he ordinarily used, as was also the cost of its application. Sometimes it was necessary to repaint a machine that already had been finished, also it was most inconvenient to clean paint spraying equipment when that method of application was used. In any event, the customer expected the machine to be delivered to him at the same price as a machine finished in the builder's standard color.

Much good should result from the effort of tool builders to standardize on a color. Once a satisfactory gray is agreed upon, it will not be surprising to learn that special charges will be made for finishes other than the standardized color.

Controlling Motions Of Ore Bridges

(*Concluded from Page* 569)

A skewing bridge is one which permits moving one end within certain limits without moving the other end. Practically all of the large bridges are of the skewing type, as it is not economical to build a rigid structure. The control is of the magnetic type arranged to give standard reversing operation with a shunted armature point on the first point forward or reverse. This shunted armature point is necessary for jogging operations and also to provide a dynamic braking point above a predetermined speed to allow moving the bridge along the runway with a heavy wind blowing in the direction of travel. The dynamic braking feature also gives a means for smoothly slowing down the bridge prior to cutting off power and allowing brakes to set.

Frequently a bridge must be controlled from either one of two points, which necessitates the use of dual control with interlocking between the two master switches for each pair of motors so that motors can be controlled from only one station at a time. This feature introduces complications if one of the operating stations is in the cab on the man trolley when it becomes necessary to keep down the number of collectors between the man trolley and bridge structure.

Skewing protection is provided by a limit switch mounted on one part of the bridge structure with the operating lever linked to another part of the bridge structure in such a manner as to cause the limit switch arm to work back and forth depending upon the amount of bridge skew. When the bridge reaches a predetermined degree of skew, the limit switch will cut off power from the motors on the leading end of the bridge in the forward direction and from the motors on the trailing end in the reverse direction. This allows the trailing motors to continue operating in the forward direction, causing the bridge to be straightened up, after which the limit switch resets and allows the motors that were shut down to start and continue the travel down the runway. To assist the operator in determining the amount the bridge is skewed at any time, mechanical indicators are attached either on one of the bridge legs as shown in Fig. 5 or directly in the operator's cab.

Rail clamps for securing the bridge to runway rails are used on all modern bridges, Figs. 1 and 2. The rail clamps are released by means of a series motor rated about 5 horsepower and controlled from a standard type starter. The rail clamps are interlocked with the bridge control in such a manner that no power can be applied to the bridge motors until rail clamps have been fully released. The rail clamps often are controlled by the first movement of the bridge master switches and, when the rail clamps are fully released, a limit switch on the rail clamps completes the control pick-up circuit for bridge motors. Returning bridge master switches allow the rail clamps to set by gravity.

A typical arrangement of master switches in the man-trolley cab is shown in Fig. 4. The holding and closing line master switches are mounted on the floor, with the trolley and two bridge masters suspended from the ceiling, the trolley master switch being at the extreme right.

Mirrors of Motordom

(*Concluded from Page* 607)

J. Raskob and Pierre S. DuPont have taken leaves of absence from General Motors headquarters in order to battle for the wets, and predictions have been made that Durant, with Alfred P. Sloan Jr. and the Fisher brothers would eventually be found in control of General Motors. It does not follow that Durant publicly espoused the dry cause because Raskob and DuPont became militant wets, but the incident typifies the poles of thoughts at the helm of General Motors.

* * *

FOR months iron and steel scrap dealers have been sighing for a brisk, rising market but now that they have it a good many dealers cannot enjoy it. Covering their orders at a loss has been expensive to many, and not all are out of the woods. With scrap production declining slightly, considerable tonnage obligated to Canadian melters and for water shipment, and the Pittsburgh district reaching in for material to replace the railroad lists taken directly by consumers, a real shortage looms. Accumulations which dealers have been holding several years are being moved, and at a profit.

Prices sometimes move within the hour. The other day a dealer was high at $8.25 for the short turnings on a list that closed at 11 a.m. He repeated the figure on a list closing at noon, but was outbid by three other dealers.

FORGINGS are now said to be the chief bane of Ford production. In some instances stampings have been substituted, with a marked saving in cost, while for some parts a return to malleable iron castings is said to be in process. Ford specifications for practically all finished steel lines are steadily being enlarged. Despite the large stock of semifinished steel at Fordson, billets are being purchased. Six thousand cars daily by the end of the year is now said to be the goal.

Buick is at 1250 daily, with 1500 the mark. The power plant, which is claimed to accelerate almost as rapidly at 65 as at 25 miles, appears to be neutralizing whatever adverse criticism the bulging body has provoked. Chrysler and Graham-Paige, pushing a sharply contrasting style of body, are also in arrears in production.

* * *

RUBBER sheets as thin as 0.0015 inches, reclaimed from scrap automobile tires, are being rolled at the Highland Park plant of the Ford Motor Co. by a process very similar to steel sheet mill practice. Most sheet mills prefer to roll no thinner than No. 30 gage, or 0.0125 inches thick. Some will go to No. 38 gage, or 0.00625 inches. A producer of tin plate claimed an achievement recently in rolling plate as thin as No. 48 gage, or 0.0016 inches. But the Ford rubber sheets are even thinner.

Casings are being reincarnated as waterproof material for tops, curtains and hard rubber parts, while inner tubes are the base for insulation for wire and cable. Casings, stripped of their beads and cut into segments, are shredded and ground into a powder to which is added a devulcanizer. After being subjected to a steam pressure of 95 pounds for 3½ hours the product is a biscuit, somewhat resembling a sheet bar. This is rolled in a 32-inch mill into continuous sheets as thin as 0.0015 inches and coiled, much like strip.

July Output Index Up

Washington, Sept. 4.—July iron and steel production index was 121, compared with 112 for June and 103 for July of 1927, taking 1923-1925 at 100, according to the department of commerce.

July production for nonferrous metals was 112, compared with 115 for June and 106 for last July. Unfilled orders index for iron and steel for July was 75, compared with 75 for June and 65 for July of last year.

Machinery

August Business Proves to Be the Best for That Month in Several Years—Prospects Believed Good for the Balance of Year

ALMOST without exception, machine tool and equipment business during last month was the best for any August in recent years. A feature has been the general aspect of the buying. All industries participated in the purchase of equipment. Individual orders were not large, anything over two or three units being better than the average. The automotive industry, in particular, has been a steady and important customer, and gives an indication of the high activity in that field. No large lists are before the trade at present and September opens with little on which to base probable sales for the month, nevertheless, both manufacturers and dealers are optimistic over prospects for the balance of the year.

New York, Sept. 4.—While there are some dissenting voices, most machine tool sellers regard business as good, with the month just closed one of the best Augusts in recent years; and of special significance has been the rather general character of this buying. Whereas in June and July the orders of some two or three large individual companies comprised a substantial portion of the business placed, August buying for the most part was comprised chiefly of a good miscellany of small contracts. Sellers assert that with the notable exception of the textile industry, most all industries contributed at least in a fair measure to the total volume of machine tools placed here. Crane inquiry appears a little livelier in this district, but orders again are few. With the vacation season now virtually at a close, crane sellers are hopeful of an improvement. Recent machine tool orders booked by Pratt & Whitney Co. include 12 ball bearing testing machines, seven 13-inch and one 16-inch engine lathe, three automatic lathes, two 14-inch and one 22-inch vertical service grinders, two jig borers, one vertical shaper, two universal bench millers and one production hand miller.

Chicago, Sept. 4.—August has proved the best month in 1928. The last two or three months' sales have been mounting steadily and prospects for continued purchasing throughout the fall are excellent. The demand is widely scattered and covers miscellaneous equipment. The absence of large lists is striking in view of sales volumes, most of the orders being for one, two and three machines. Punch presses are being called for in many quarters, otherwise inquiries cover the entire range uniformly.

Worcester, Mass., Sept. 4.—While there is an increase in inquiry, the machine tool market shows little change from last week, Buying is confined largely to individual units and two or three tools at a time. Orders, however, cover a wide range and the total with most makers of machinery is generally satisfactory. The grinding machinery makers continue to book a steady business. The automobile buying has shown a slight spurt in one quarter and the small tool market is steady with jobbers moving stocks better than expected in most instances. The radio industry is also taking a fair volume of new machinery. A number of tools went this week to a metalworking plant in Connecticut and there appears to be more interest from the metal trades in general. The call for automatic tools continues good. Two engine lathes were sold to a midwest interest and another firm booked several production lathes of various sizes. The textile market shows little change, but the south is taking more textile machinery than generally expected.

Pittsburgh, Sept. 4.—The machine tool market continues quiet although a fair increase in inquiries is noted. August business generally showed little change from July, although one seller reports an increase of 30 per cent in last month's business. Pending business provides a fairly good outlook for September. Most of the tools on the third quarter list of the Westinghouse Electric & Mfg. Co. have been placed and it is believed that the fourth quarter list will be appearing soon. The crane market continues quiet.

Cleveland, Sept. 4.—Activity in this district continues to run high, with August sales representing the best for that month in several years. Manufacturers' shops are well booked up, and in some cases overtime schedules are being maintained. Any order calling for more than two or three machines is exceptional, but interest is widespread, with all industries taking equipment. A good aggregate of machinery is being taken by various automobile makers in the Detroit district. Few inqquiries are in hand for September, but dealers are optimistic as to business which will develop. As a matter of fact, good buying is expected for the balance of the year.

CRANE ORDERS PLACED

Nine overhead cranes, handpower and 1-motor, for Hooker Electro Chemical Corp., Niagara Falls, N. Y., to a western builder; equipment is for installation at Tacoma, Wash.

Among single orders were: 100-ton electric crane for Stevens & Wood, New York, for a power house installation in southern New Jersey, to Niles Crane Corp.; 5-ton handpower crane for N. P. Nelson Mfg. Co., Passaic, N. J., to Box Crane & Hoist Corp.; 3-ton handpower crane for export, to New Jersey Foundry & Machine Co.; 2-ton handpower crane for a stone company in Texas, awarded through an eastern dealer to New Jersey Foundry & Machine Co.; 100-ton overhead traveling crane for Great West Power Co., San Francisco, to Show Crane-Putnam Machine Co.

CRANE ORDERS PENDING

5-ton electric crane for Western Electric Co., Kearny, N. J.; bids asked.

Europe Takes Third of Automotive Exports

Almost a third of all United States shipments abroad of passenger automobiles during 1927 went to Europe, according to the automotive division, department of commerce.

With purchases amounting to 32½ per cent of total passenger car exports from the United States, which last year reached $207,960,000, Europe regained first place from Oceania, which led in 1926.

While taking 32½ per cent of United States exports of passenger cars, Europe bought almost 72 per cent more than in 1926 and about 187 per cent more than in 1923. Second position is taken by South America with almost 19 per cent, increasing nearly 90 per cent over 1926 and 260 per cent over 1923. The total for North America is close to that of South America. Oceania, with 15 per cent, was third, and Asia and Africa each took about 8 per cent of vehicle exports.

South America bought most trucks and busses, Oceania was second, Europe third, North Africa fourth, Asia and Africa 9½ and 9 per cent. In 1913 the percentage of trucks and busses in automotive exports was 7. It now is 25. This is due to extension of good roads generally the world over.

False Claims Stopped

Washington, Sept. 4.—A picture of the character known and recognized as "Uncle Sam" was carried in advertisements by a corporation engaged in the fabrication of fences from wire, along with the statement "the fence Uncle Sam recommends."

Another assertion was that the wire was "just double the strength" of ordinary wire and was "double galvanized." These statements were found by the federal trade commission to be misleading. The wire was not recommended by the government and was not double strength or double galvanized. The manufacturer has just signed a stipulation agreement with the Commission to "cease and desist" from such misrepresentations.

Pittsburgh Foundrymen's asscociation will dispense with its regular September meeting and start its fall and winter activities with a meeting, Oct. 15, at Fort Pitt hotel at 6:45 p. m.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

HUDSON MFG. CO., Minneapolis, with plants in Oshkosh and De-Pere, Wis., and the Lowell Specialty Co., Lowell, Mich., have been merged under the name of the former. Both are manufacturers of hand and compressed air sprayers, bucket pumps, barrel pumps and other farm equipment and devices. The management remains unchanged, John A. Arehart continuing in general charge of the Lowell plant.

* * *

UNITED STATES SLICING MACHINE CO., LaPorte, Ind., is building an addition to its plant to increase production 40 per cent.

* * *

MENASHA WOODENWARE CO., Menasha, Wis., is building a 1-story addition, 80 x 140 feet, to its dry kilns. C. R. Meyer & Sons Co., 50 State street, Oshkosh, Wis., has taken the general contract.

* * *

PORTER-CABLE MACHINE CO., Syracuse, N. Y., has received an order from Poland for 16 high speed production lathes. They are to be used for production of small and medium sized metal parts.

* * *

GURNEY Refrigerator Co., Fond du Lac, Wis., manufacturer of ice boxes, is electrifying its plant. A 300 horsepower motor generator has been purchased to provide power for individual electric motors being applied to all tools and other machines. E. G. Vail is president and treasurer.

* * *

WARD & DICKINSON, Silver Creek, N. Y., builders of dining cars, have bought a site and will build an addition. Lee F. Dickinson is president, Lars S. Porter and T. H. Gerner, Buffalo are vice presidents, Helen M. Dickinson is secretary and Esther P. Oldenberg treasurer.

* * *

WELLMAN BRONZE CO., Cleveland, has been appointed representative in that city for the Alemite Die Casting Co., Chicago, for die castings and by the Keystone Forgings Co., Northumberland, Pa., for brass forgings.

* * *

OLIVER IRON & STEEL CORP., Pittsburgh, Morris & Bailey division, announces the appointment of Edgar T. Ward's Sons Co., through the latter's Chicago office, as its mill representative and warehouse distributor of cold-rolled strip steel in Indiana, Illinois, western Michigan, Wisconsin and Missouri.

* * *

HAYES MFG. CO., Galva, Ill., has taken over the patent rights, manufacturing rights and patterns of the Meadows Mfg. Co., Bloomington, Ill., for its line of portable, power and bucket elevators, and will continue production at the Galva plant. The Meadows company will continue the manufacture of washing machines.

* * *

GLOBES STEEL TUBES CO., Milwaukee, is making substantial improvements in its plant, replacing one tube rolling mill unit and installing modern machinery for piercing, rolling and reducing, all electrically driven. This involves additions to the electric power plant and changes in buildings.

* * *

IMPROVED EQUIPMENT CO., 24 State street, New York, and Russell Engineering Co., St. Louis, have been merged as the Improved Equipment-Russell Engineering Corp. It will manufacture gas bench equipment. Henry L. Doherty & Co., 60 Wall street, New York, controls the company. Henry L. Doherty is president.

* * *

GENERAL REFRIGERATION CO. interests, Beloit, Wis., manufacturer of railroad car equipment, domestic and commercial refrigerators of the automatic type, have acquired the Taylor Freezer Corp., Buffalo, and will transfer the works to the General plant in South Beloit. J. B. Morash has been elected president of the Taylor company, and Charles Taylor, former president, becomes a member of the board, with T. E. Swords of Rockford, Ill. F. E. Dennison is vice president and J. J. Tyndal secretary and treasurer. About 200 men will be added to the Beloit payroll when removal of the Buffalo plant is completed.

* * *

VICTOR A. DORSEY & CO., consulting engineers, Chicago, has been organized, continuing the business heretofore conducted by Hagenah & Dorsey. The company will specialize in appraisals, cost analyses, rate studies, economic surveys, and investigations of public utilities. Victor A. Dorsey formerly was associated with Mr. Hagenah as a junior partner for 18 years. When Mr. Hagenah resigned to become affiliated with public utilities interests, Mr. Dorsey reorganized the company. Mr. Dorsey, also, is a director of the Williams Alloy Products Co., Elyria, O.

* * *

MONROE STEEL CASTINGS CO., Monroe, Mich., has installed a low pressure, oil-fired, car type annealing furnace, automatically controlled. The car is 6 x 15 feet, with a load capacity of 15 tons. An addition has been built to accommodate the furnace.

* * *

PAIGE & JONES CHEMICAL CO., 461 Fourth avenue, New York, and Hammond, Ind., has purchased from the American Water Softener Co., Philadelphia, patent rights and good will pertaining to the lime soda water softening business of that company and will hereafter manufacture and sell this type of lime soda water softeners. W. T. Runcie, formerly sales manager, and H. C. Waugh, engineer of the American company, have joined the organization of the Paige & Jones Chemical Co.

Drawback Is Extended

Washington, Sept. 4.—A treasury decision of 1915, later amended, providing for the payment of drawback on metal alloys manufactured by the Hoyt Metal Co., New York, in whole or in part with the use of imported lead, antimonial lead, and antimony, was extended in 1926 to provide for such metal alloys manufactured by the said company at its factory at Granite City, Ill., and for antimonial sheet lead manufactured at that factory, is now further extended by the department to cover antimonial lead wire manufactured by the Hoyt Metal Co. at its Granite City plant with the use of imported materials.

Lehigh Structural Steel Co., Allentown, Pa., has added $130,000 in group life insurance, making $378,000 now in force on its employes.

CONSTRUCTION and ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BRIDGEPORT, CONN.—Bridgeport Hardware Mfg. Co., 461 Iranistan avenue, plans to build a 2-story plant, 45 x 102 feet, on Washburn street.

FAIRFIELD, CONN.—United States Aluminum Co., Post road, has awarded the contract for a 1 and 2-story plant and service building, 220 x 470 feet and 65 x 140 feet.

HARTFORD, CONN.—Royal Typewriter Co., New Park avenue, will start work on its new 5-story plant addition, 70 x 190 feet and 70 x 70 feet, L-shaped. Greenwood & Noerr, Hartford, are consulting engineers.

BALTIMORE—Standard Heating Corp., 657 Calvert building, has been incorporated by Carl Levy.

BALTIMORE—Metallic Products Corp. has been incorporated to manufacture and deal in metal products by Vincent W. Westrup, First National Bank building.

BALTIMORE—United Railways & Electric Co., Continental building, plans to build and operate a complete repair and storage garage for motor busses, to be 1-story.

CHELSEA, MASS.—Beaudette Mfg. Co., Crescent avenue, manufacturer of loud speakers, has awarded the general contract for the construction of a 2-story manufacturing plant addition. (Noted July 12.)

WEST SPRINGFIELD, MASS.—Stacy Machine Works plans to build a 1-story plant addition, 40 x 40 feet.

CALDWELL, N. J.—Franklin Lightning Rod Co. has been incorporated with $125,000 capital to manufacture lightning rods by Charles S. Strawn, Newark, N. J.

CAMDEN, N. J.—American Brown Boveri Electric Corp., manufacturer of heavy electrical machinery, has arrangements under way to establish a plant at the municipal airport, Port Newark, Newark, N. J., to manufacture dirigible aircraft.

DUNELLEN, N. J.—R. Hoe & Co., manufacturers of printing machinery, have awarded the contract for reinforcing bars for a building to Truscon Steel Co., through Wigton-Abbott Corp.

JERSEY CITY, N. J.—Robert Castro Co. Inc. has been incorporated with $3000 capital to manufacture tools, machinery, etc., by John L. Hoffman, Jersey City, attorney.

JERSEY CITY, N. J.—United Reproducers Corp. has been incorporated with 750,000 shares no par value stock to manufacture and deal in loudspeakers, by Corporation Trust Co. Jersey City.

KEARNY, N. J.—Western Electric Co. has awarded the contract for concrete reinforcing bars for building construction to Joseph T. Ryerson & Son Inc., through Austin Co.

NEWARK, N. J.—Electro-Therapeutic Institute has been incorporated with $2000 capital to manufacture surgical instruments by Harry N. Selvage, New York, attorney.

NEWARK, N. J.—Electric Control Water Heating Co. has been incorporated with $100,000 capital to manufacture and deal in heating apparatus, by William L. Greenbaum, Newark, attorney.

PATERSON, N. J.—Saldarini Machine Shop Inc. has been incorporated with $50,000 capital by Samuel Raff, Paterson, attorney.

TRENTON, N. J.—Metropolitan Colprovia Corp. has been incorporated with $50,000 in preferred shares and 1000 shares no par value stock to manufacture building materials, by Frank Transue, Trenton, attorney.

BROOKLYN, N. Y.—Phalanx Sheet Metal Works has been incorporated with $5000 capital by D. L. Samuels, 302 Broadway, Manhattan, attorney.

BUFFALO—Likly Luggage Co., manufacturer of metal trunks, etc., has acquired a group of buildings at Fitchburg, Mass., and will remodel them to be used for a manufacturing plant.

BUFFALO—Do-All Appliance Corp. has been incorporated with 10,000 shares no par value stock to manufacture and deal in electric appliances, by Kennefick, Cooke, Mitchell & Bass, Buffalo, attorneys.

LONG ISLAND CITY, N. Y.—Andrews Lead Co., 36 Greenpoint avenue, B. Andrews, manager, has awarded the general contract for a 1-story plant to M. J. Irwin & Son, 48 Thirty-seventh street, Long Island City.

NEW YORK—Contract for column cores for Packard Motor Car Co. service station has been awarded to Levering & Garrigues.

NEW YORK—A. & D. Steel Fixtures Corp. has been incorporated with $10,000 capital by Lewittes & Kumble, 1328 Broadway, attorneys.

NEW YORK—Interstate Brass Co. has been incorporated with 100 shares no par value by B. Bowitz, 15 East Forty-first street, attorney.

NEW YORK—Theodore E. Koke has been incorporated with $20,000 capital to manufacture and deal in machinery and tools by Blumofe & Devine, attorneys.

NEW YORK—Poloron Electric Mfg. Corp. has been incorporated with 200 shares no par value stock by M. R. Weinberger, 1440 Broadway, attorney.

NEW YORK—Alfit Mfg. Corp. has been incorporated with $250,000 capital to manufacture and deal in machinery by Engel Bros., 154 Nassau street.

NEW YORK—Consolidated Instrument Co. of America Inc., 41 East Forty-second street, manufacturer of oil pressure gages, air speed

Resale Equipment News

MORE than 400 machine tools are being liquidated at the plant of Sloan & Chase, manufacturers of precision machinery, 351 Sixth avenue, Newark, N. J. Equipment includes Brown & Sharpe service grinders, universal and plain milling machines, turret lathes, Gould & Eberhardt shapers, Brown & Sharpe automatic screw machines, 50 tool room lathes of Pratt & Whitney, Hendey and other makes, radial drills, plain drills, universal grinders, planers and so forth. Herbert Action Segal & Co., 800 Broad street, Newark, are auctioneers.

The plant of the Bradford Gasoline Co., near Bradford, Pa., has been sold to Louis Smith, scrap dealer, Wellsville, N. Y., who will dismantle and ship machinery, tanks and scrap to Pittsburgh. The plant is estimated to contain about 1000 tons of metal.

* * *

Real estate and buildings of the Warren Iron & Steel Co., Warren, O., have been bought by the General Fire Extinguisher Co., which owns adjoining property. Equipment of the steel plant was sold at auction previous to disposing of the land and plant.

* * *

Scrap metals and other waste material will be sold under sealed bids Sept. 18 at Fort Hancock, Sandy Hook, N. J. The sale includes 10 tons of scrap iron and steel, 800 pounds of copper, 1040 pounds of brass and 210 pounds of aluminum. Other material includes enameled ware, motors, starters and generators.

Sales Calender

Sept. 18—*Auction sale surplus and surveyed naval material at Philadelphia navy yard.*

Sept. 18—*Sale by sealed bids of scrap metals at Fort Hancock, N. J.*

indicators, other precision instruments, etc., plans to build a new assembly plant and a research and experimental laboratory. Joseph Leopold is president.

NEW YORK—Phillipsdale Realty Corp., 548 East 118th street, plans to build a wire annealing plant, 1-story. Bart & J. P. Walther, 103 East 125th street, are architects.

ROCHESTER, N. Y.—Continental Can Co. which recently acquired the New Orleans Can Co., New Orleans, plans expansion for that plant. The New Orleans plant will be continued in production.

SILVER CREEK, N. Y.—Ward & Dickinson, dining car builders, have incorporated and plans expansion of the business in the near future. Property has been purchased and construction work will start in the near future.

TROY, N. Y.—Behr-Manning Corp. has awarded the contract for the construction of an abrasive plant, including a 1-story machine shop, 65 x 170 feet.

HARRISBURG, PA.—A new building, 32 x 120 feet, to house the Keller Engineering Co.'s plant is nearing completion and machinery is being installed. The building will be used as a forge shop.

HARRISBURG, PA.—Armstrong Mfg. Co., Waterloo, Iowa, manufacturer of well-drilling machinery, parts and appliances, plans to build a new manufacturing and distributing plant here on newly acquired property at Sixteenth and Mayflower streets.

MONESSEN, PA.—City council plans to establish a municipal airport, including hangars, shops, etc., on property recently purchased in Pricedale road.

PHILADELPHIA—Davis Bros. Inc., 4250 Wissahickon avenue, manufacturer of spikes, nails, etc., plans to build a 1-story plant addition.

PHILADELPHIA—Willey-Ellis Co., 210 North Thirteenth street, manufacturer of laundry machinery and appliances, plans to build a new 1-story manufacturing plant at 1223 South Talman avenue, Chicago.

PHILADELPHIA—Philadelphia Gas Works, 1401 Arch street, plans to establish a new storage and distributing plant on a newly purchased site, 480 x 480 feet, at Fifty-seventh street and Lindbergh boulevard.

PHILADELPHIA—Contract for a plant for the A. H. Fox Gun Co., Wagner avenue, West of Eighteenth street, has been placed with the Van Asdlen Construction Co. Inc., 1600 Arch street.

PHILADELPHIA—A machine shop will be erected at 4501 Richmond street, by the Koppers Construction Co., which is erecting a number of industrial buildings on the site for the Philadelphia Coke Co.

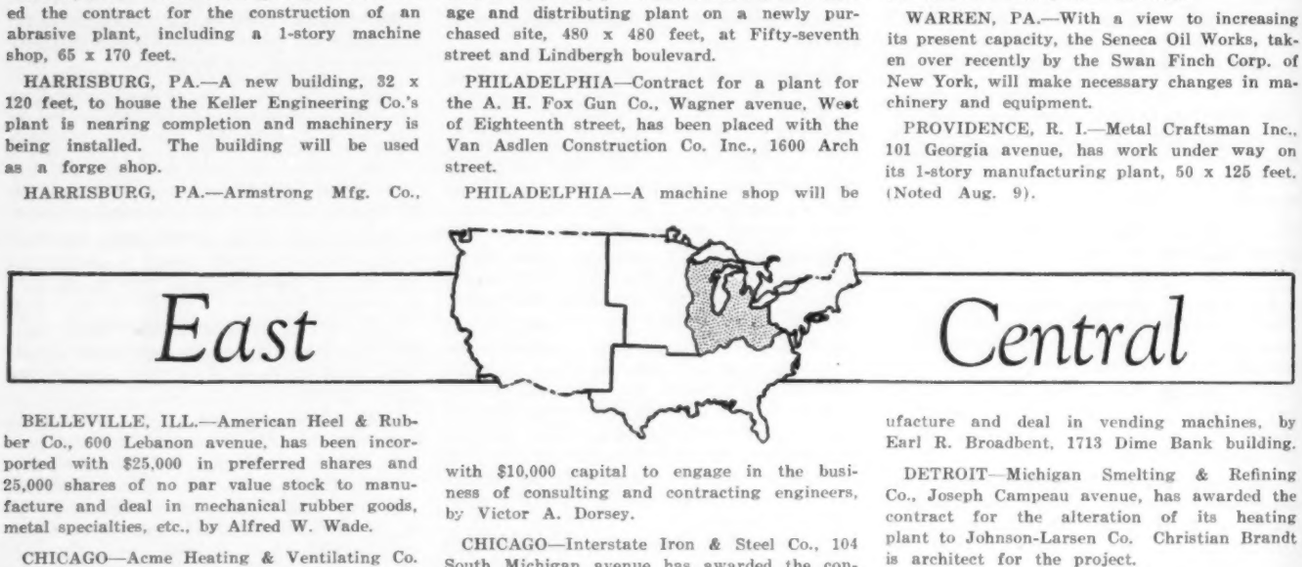
PHILADELPHIA—Plans are being prepared for a manufacturing and warehouse group for Charles Kahn, northwest corner, Sixth street and Glenwood avenue. Eugene A. Stopper is the engineer in charge.

PITTSBURGH—Oliver Iron & Steel Works plans to build a 1-story addition at Muriel and Tenth streets.

PITTSBURGH—United States Aluminum Co., Oliver building, has awarded the contract for a new plant to be built on Post road, Fairfield, Conn., to C. A. Fritz, Pittsburgh. The construction includes a main building, 1-story, 220 x 475 feet; two auxiliary buildings, 1-story 65 x 140 feet and 2-story 30 x 120 feet.

WARREN, PA.—With a view to increasing its present capacity, the Seneca Oil Works, taken over recently by the Swan Finch Corp. of New York, will make necessary changes in machinery and equipment.

PROVIDENCE, R. I.—Metal Craftsman Inc., 101 Georgia avenue, has work under way on its 1-story manufacturing plant, 50 x 125 feet. (Noted Aug. 9).



BELLEVILLE, ILL.—American Heel & Rubber Co., 600 Lebanon avenue, has been incorporated with $25,000 in preferred shares and 25,000 shares of no par value stock to manufacture and deal in mechanical rubber goods, metal specialties, etc., by Alfred W. Wade.

CHICAGO—Acme Heating & Ventilating Co. has had plans prepared by William E. Sammons, 3518 West Sixtieth street, for a shop addition.

CHICAGO—Commonwealth Edison Co. has awarded the contract for a switch terminal to Vierling Steel Works.

CHICAGO—O. D. Jennings & Co., 4329 Lake street, manufacturer of coin machines, plans to build a manufacturing plant addition at 4309 Lake street.

CHICAGO—Nordenberg Trunk Works, 406 North Clark street, manufacturer of metal trunks, plans to rebuild that part of its plant which was damaged in a recent fire.

CHICAGO—Western Electric Co., 11 South La Salle street, plans to build a new nonferrous metal mill at Twenty-sixth street and Cicero avenue.

CHICAGO—Union Radio Corp., 1340 South Michigan avenue, has been incorporated with 1000 shares no par value stock to manufacture and deal in radios, by M. E. Lawless.

CHICAGO—American Casement Window Hardware Co., 228 North LaSalle street, has been incorporated with $30,000 capital to manufacture and deal in building hardware, by R. C. Graners, J. L. Allen and L. Sanderson.

CHICAGO—Sheridan Mfg. Corp., 1340 South Michigan avenue, has been incorporated with 1000 capital to manufacture and deal in radio sets and accessories by George A. Chrytton.

CHICAGO—Welding Appliance Co., 162 North Clinton street, has been incorporated with 1000 shares no par value stock to manufacture and deal in welding machines and appliances by W. H. Abbott.

CHICAGO—Victor A. Dorsey & Co., 38 South Dearborn street, has been incorporated with $10,000 capital to engage in the business of consulting and contracting engineers, by Victor A. Dorsey.

CHICAGO—Interstate Iron & Steel Co., 104 South Michigan avenue has awarded the contract for structural steel for a 3-story transformer station to American Bridge Co. (Noted Aug. 30.)

CHICAGO—Central Steel & Wire Co., 4545 South Western avenue, plans to build a large warehouse. The building will be constructed on a plot of 120 x 360 feet at the corner of South Western avenue and Forty-fifth place. W. S. Crosby is architect.

CHICAGO—Keystone Steel & Wire Co. has been awarded the contract by the United States government to furnish the rip-rap process for the prevention of erosion of the Mississippi river. It consists of a heavy wire mesh filled with concrete, to be dropped into the river at various points.

ROCKFORD, ILL.—Elco Tool & Screw Corp., 1800 Broadway, plans to build a new plant addition, 2-story, 25 x 87 feet, to be used for shipping and receiving department.

INDIANAPOLIS—Diamond Chain & Mfg. Co. has completed plans and placed contracts for a 4-story manufacturing plant addition, to add 40,000 square feet of floor space.

BAY CITY, MICH.—Bay City Electric Castings Co. suffered damage from a fire in its plant Aug. 19. The company officials contemplate rebuilding the burned plant.

DETROIT—Vorclone Corp. has taken over the Detroit Laundry Machinery Co., Power Bros. Co. and the Vorclone Co., Milwaukee, and plans to increase production and improve its facilities.

DETROIT—Knight Screw Products Co., 6510 Epworth boulevard, W. C. Knight purchasing agent, is inquiring for machine shop equipment for its proposed manufacturing plant addition.

DETROIT—Drinkomat Corp. of Detroit has been incorporated with $50,000 capital to manufacture and deal in vending machines, by Earl R. Broadbent, 1713 Dime Bank building.

DETROIT—Michigan Smelting & Refining Co., Joseph Campeau avenue, has awarded the contract for the alteration of its heating plant to Johnson-Larsen Co. Christian Brandt is architect for the project.

DETROIT—Industrial Surplus Material Co., 687 Illinois street, has been incorporated with $10,000 capital to refine and deal in metals and other surplus materials by J. Zeldea, 2022 Hazelwood street.

DETROIT—Verville Aircraft Co. has been incorporated with 8750 shares no par value stock to manufacture and deal in aircraft of all kinds by U. George Krapfel, and H. H. Griffith, 1800 Buhl building.

DETROIT—Colonic Therapy institute has been incorporated with 100 shares no par value stock to manufacture and deal in all kinds of machinery, supplies, etc., by Carrie L. Eggert, 1750 Larned street, Detroit.

FENTON, MICH.—Automotive Signal Devices of America plans the construction of a manufacturing plant here.

FLINT, MICH.—Albert Kahn, architect, Detroit, is taking bids on a plant for the Fisher Body Corp.

FLINT, MICH.—Chevrolet Motor Car Co. is inquiring for assembly line equipment and conveyors for its proposed 2-story auto assembly plant, 200 x 240 feet and 50 x 170 feet.

FORDSON, MICH.—George A. Desmond Co., 5018 Middlesex avenue, has been incorporated with $5000 capital to construct and operate heating and plumbing apparatus, by George A. Desmond, Fordson.

HIGHLAND PARK, MICH.—Chrysler Corp., Massachusetts avenue, has awarded the general contract for a 1-story plant addition, 80 x 540 feet, for storage of motor cars and parts on Oakland avenue.

KALAMAZOO, MICH.—Dixie Service Co. has been incorporated with $100,000 capital

to manufacture and deal in machinery, etc., by L. V. White, 648 East Main street.

LANSING, MICH.—William G. Powell, industrial commissioner of the chamber of commerce, is working on arrangements to obtain an airplane manufacturing plant for this city. The plant will manufacture biplanes.

PONTIAC, MICH.—A. W. Kutsche & Co., general contractor for the five manufacturing buildings for Oakland Motor Car Co., has awarded the contract for reinforcing bars to McRae Steel Co. (Noted Aug. 30.)

PONTIAC, MICH.—O. F. Miller Co., Kalamazoo, Mich., has been awarded the general contract for the construction of additions for the Central High school. The improvements to the building will include a power plant, industrial building, etc.

AKRON, O.—Goodrich Rubber Co., 500 South Main street, plans to build a new plant. W. A. Means is vice president.

CLEVELAND—Bell Metal Stamping Co. has established a plant at 1784 East Thirty-seventh street to manufacture light metal stampings.

CLEVELAND—Board of education, F. G. Hogen, director, plans to build a foundry addition at 535 Eagle avenue. G. M. Hopkinson, 310 Auditorium Garage building, is school architect.

CLEVELAND—Hildebrant Provision Co. plans to build a boiler and engine room as part of its new plant at 3615 Walton avenue. The main building of the plant was started some time ago.

CLEVELAND—Gabriel Snubber Mfg. Co., 1407 East Fortieth street, is having its plant retooled to provide for the manufacture of a newly developed type of hydraulic shock absorber.

CLEVELAND—Osiris Battery & Fluid Co. suffered damage to a building in which were housed its machine shop and storage department, Aug. 29.

CLEVELAND—Peerless Motor Car Corp., East Ninety-third street, L. R. German, vice president, plans to build a boiler house and coal storage building. W. Watson & Associates, 4614 Prospect avenue, are architects.

CLEVELAND—Signal Devices & Alarm Co. has been incorporated with $5000 in preferred shares and 200 shares no par value stock by Samuel L. Lewis, Elmer G. Wildhaber and A. M. Majeska.

CLEVELAND—Cleveland Wire Spring Co. will build a new plant addition and warehouse at Harvard avenue and East Forty-ninth street. The addition will be 20 x 42 feet and the warehouse 120 x 122 feet, George S. Rider is architect.

DAYTON, O.—United States army war department plans to build a 1-story repair shop, 200 x 300 feet, for general airplane repair at Wright field here.

DAYTON, O.—Leland Electric Co., G. H. Leland, president, plans to build a plant, office building and boiler room on North St. Clair street. The Ballinger Co., 105 South Twelfth street, Philadelphia, is architect for the project.

DAYTON, O.—M. D. Larkin Co., 115 East Third street, manufacturer of machinery and mill supplies plans an expansion and improvement program. Maurice D. Larkin is president of the company.

TOLEDO, O.—Willys-Overland Co. has awarded the contract for a plant and office building to A. Bentley & Sons Co., 201 Belmont avenue. The contract for structural steel has been awarded to American Bridge Co. and for reinforcing bars to Building Products Co.

MORGANTOWN, W. VA.—Baltimore & Ohio railroad, L. P. Kimball, engineer of buildings, Baltimore, has awarded the general contract for a water treating plant to Pittsburgh-Des-Moines Steel Co., Neville Island, Pittsburgh.

FOND DU LAC, WIS.—J. E. Burke Co., manufacturer of steel radiator covers and humidifiers, is engaged in a program of expansion. Earle W. McMullen is general manager of the company.

MILWAUKEE—Globe Seamless Tubes Co., 1345 Burnham street, has broken ground for its rolling mill addition, 110 x 240 feet, 1-story. F. J. O'Brien is president and general manager of the company. (Noted Aug. 30.)

STOUGHTON, WIS. — McNally - Tollefson Foundry Co., John McNally, president, plans to build a shop addition.

Issues of No-Par Stock Show Great Gain

New York, Sept. 4.—Rapid increase in the use of no-par stock in the financing of corporations in the United States is disclosed by the national industrial conference board. While there is no means of ascertaining the total amount of no-par stock outstanding since 1925, the immense growth of this method of financing in recent years is reflected in the fact that, while the "fair value" of all outstanding no-par stock in 1925 is estimated as less than $7,000,000,000, the market value of no-par issues listed on the New York exchange alone at the beginning of 1928 amounted to nearly $17,000,000,000.

This latter figure in part reflects a considerable increase in market value as well as in actual number of shares issued. On the basis of capital stock tax data the board finds that by 1922, a total of 6763 companies or nearly 2 per cent of all corporations in the United States, had issued no-par shares, while in 1925 a total of 17,543, or nearly 5 per cent of all corporations had issued no-par stock, the total "fair value" of which amounted to approximately $6,900,000,000.

Like data are not available for later years because the capital stock tax was discontinued in 1925, but the listings on the New York stock exchange, representing the bulk of all important issues, reflect still more rapid growth of no-par stock issues during the past four years. In 1925, 213, or 23 per cent of a total of 926 issues listed on that exchange, were no-par issues, representing in market value $5,284,000,000 or 19.5 per cent or less than one-fifth of the total market value of $27,070,000,000 of all listed issues. By 1928, the number of no-par issues had grown to 399, representing 36.4 per cent of all issues listed, with a market value of $16,850,000,000 which is 33.9 per cent or more than one-third of the total market value of all listed stock issues.

VICTORIA, B. C.—Steel Containers Ltd. is completing arrangements for the erection of a steel plant at Ogden Point Piers, here.

CAMPBELLTON, N. B.—Fraser Companies Ltd. is having plans prepared for the erection of a bleached sulphite pump mill at Athol near here.

WEST ST. JOHN, N. B.—Bids are being received by A. Gray, general manager of the St. John harbor commissioners until Sept. 12, for the construction of the superstructure of a grain elevator and pier here. Engineers, John S. Metcalf & Co., 460 Helen street, Montreal, Que.

LONDON, ONT.—Bids are being received by W. P. Near, city engineer, until Sept. 11 for the supply and erection of a 400-horsepower boiler with underfeed automatic stoker, to be installed in boiler house of Victoria Hospital here.

NIAGARA FALLS, ONT.—New apparatus and machinery is being installed in the plant of the American Cynamid Co. to assist in the increasing production. Additional power has been provided for by the Hydro-Electric Power commission of Ontario.

OTTAWA, ONT.—Lee & Hawley Ltd. has been incorporated to manufacture and deal in auto cars, automobiles, motor vehicles, etc., with $50,000 capital by Vivian S. McClenaghan, Austin O'Connor and Redmond Code.

PORT ARTHUR, ONT.—Interstate Fuel & Light Co., Benton Harbor, Mich., is negotiating with the city for certain concessions which, if granted, will enable the company to build a coke plant here. The company's affairs are being handled here by Fred W. Freese, consulting engineer, Chicago.

TORONTO, ONT.—Hatzel & Buehler Ltd. has been incorporated to carry on a business as contractor, electrical and mechanical engineer with $40,000 capital by James D. McCallum, Claude C. Savage and Cicely L. Smith.

TORONTO, ONT.—Philco Products Ltd. has been incorporated to manufacture and deal in electrical machinery, apparatus and appliances, with $40,000 capital by Rowan G. Gordon, Everett Bristol and Olive Harland.

WALKERVILLE, ONT.—Border Construction Co., Imperial block, has the contract for addition to plant "A" of General Motors of Canada Ltd. Hutton & Souter, 6 James street south, Hamilton, Ont., are architects.

QUEBEC, QUE.—Quebec Power Co., 229 St. Joseph street, is having plans prepared by the municipal engineering staff for the erection of a gas plant here.

SASKATOON, SASK.—Bids are being received by the city commissioner, Andrew Leslie, until Oct. 10, for a steam turbine generator unit of 10,000 or 7500 kilowatt alternative capacity, complete with condenser and auxiliary equipment. Tender forms can be had from the commissioner.

Western States

EMERYVILLE, CALIF.—Amateur Screw Products Co., 1265 Sixty-seventh street, has plans for a plant addition.

SAN DIEGO, CALIF.—Bureau of yards and docks, navy department, Washington, is inquiring for a 10-ton electric bridge crane, to be installed at the naval operating base air station here.

SAN FRANCISCO—Structural steel for pier sheds for pier No. 45 has been awarded to Pacific Coast Steel Co.

SAN FRANCISCO—City and county plan to build an addition to junior high school to include machine shops, etc., at Bay, Powell, Francisco and Stockton streets. S. Heiman, 57 Post street, is architect.

VAN NUYS, CALIF.—Nenzel Mfg. Co., manufacturer of flash lights, contemplates expansion soon, to include a 3-story manufacturing plant on the property adjoining its present building. Joseph F. Nenzel is president of the company and inventor of the flash light which it manufactures.

VERNON, CALIF.—Baash-Ross Tool Co., 5512 South Boyle avenue, has awarded the contract for a 1-story plant addition to Modern Iron Works. The addition will be used for a machine shop.

PORTLAND, OREG.—Western Tank & Steel Co. has been awarded the contract for building and furnishing the tanks for the new plant of the Texas Co., St. Helens road.

ANACORTES, WASH.—Union Oil Co. plans to improve its site at Fourth street with buildings and equipment.

MORTON, WASH.—Langman Electric & Engineering Co., Portland, Oreg., has been awarded the contract for the construction of a municipal light and power plant.

West Central

CLINTON, IOWA—Central Steel Products Co., manufacturer of pipe nipples, fabricated pipe, etc., plans to add a line of plumbing and heating supplies and to increase its entire production.

SIOUX CITY, IOWA—Albertson & Co., manufacturer of tools and shop equipment, plans to build a plant addition to provide for shop expansion.

KANSAS CITY, MO.—Chicago, Burlington & Quincy railroad, A. W. Newton, chief engineer, Chicago, has awarded the general contract for building an electrically operated timber coaling station, 200-ton capacity to Ogle Construction Co.

KOCH, MO.—City of St. Louis plans to build a power plant addition here. J. L. Rilliet Jr., City Hall, St. Louis, is engineer.

LINCOLN, NEBR.—City of Lincoln, T. H. Berg, clerk, plans to build a municipal airport, including the construction of hangars, shops, etc.

FARGO, N. DAK.—Chevrolet Motor Car Co., Detroit, plans to build a 2-story branch plant, 115 x 250 feet.

Southern States

MOBILE, ALA.—National Foundry Co. Inc. has been incorporated with $2000 capital to engage in the general foundry and machine shop business by Ferdinand Hackmeyer, F. William Hackmeyer and Bernard Scholtes.

SHEFFIELD, ALA.—The Kiwanis club here is considering the project of establishing an airport.

NEWPORT, ARK.—The local Civitan club is interested in establishing an airport here.

DAYTONA BEACH, FLA.—City commission plans to install pumping machinery and other power equipment in connection with its proposed extensions and improvements in the municipal waterworks. Metcalf & Eddy, 14 Beacon street, Boston, are architects.

FORT PIERCE—Engineers have started construction of the airport on 167-acre Savannah tract of land south of here, for the city.

ST. PETERSBURG, FLA.—United States Piston Ring Co. has its new plant under construction at Pinellas Park, here.

LEESVILLE, LA.—Weber-King Mfg. Co., mechanical equipment manufacturer, plans to rebuild that part of its machine shop which was damaged in a recent fire.

BALLINGER, TEXAS—City of Ballinger is interested in establishing an airport, with negotiations in the hands of J. D. Motley, secretary of the chamber of commerce.

BIG SPRING, TEX.—Southwest Tool Supply Co. plans to build a manufacturing and distributing plant at Forsan, Tex.

DALHART, TEX.—Chamber of commerce of Dalhart contemplates establishing an airport.

New Trade Publications

BRASS AND BRONZE—Taunton-New Bedford Copper Co., Taunton, Mass., has issued a bulletin covering its brand of brasses and bronzes for various uses, illustrated in natural colors.

SELECTIVE ADSORBENT—Davison Chemical Co., Baltimore, Md., is distributing a reprinted article on the development and uses of silica gel, a selective adsorbent. Illustrations show its use as a refrigerant, for dehydrating and air conditioning.

PULVERIZERS—Erie City Iron Works, Erie, Pa., describes in a bulletin its unitype pulverizer. Illustrations, diagrams and data tables make clear its construction and operation and views are presented of actual installations.

HEAT TRANSFER EQUIPMENT—Ross Heater & Mfg. Co., Buffalo, N. Y., has issued a new catalog of its equipment for heat transfer, steam jet vacuum pumps, expansion joints and strainers. It is in loose-leaf form and is well illustrated.

ARC WELDER—General Electric Co., Schenectady, N. Y., in a current bulletin describes a type of arc welder, belt, motor or gas-engine drive, stationary or portable, self-excited, variable-voltage, single-operator. It is illustrated.

CONCRETE ADMIXTURE—Celite Products Co., Los Angeles, has issued a bulletin describing its admixture for concrete to improve its workability. It describes the manner in which it functions in a concrete mix and how improved workability affects the uniformity of water-tightness and appearance of the finished concrete. The bulletin contains a discussion of water-cement ratio control and application of the admixture when this control is employed.

VARIABLE SPEED TRANSMISSION—A current bulletin by the Stephens-Adamson Mfg. Co., Aurora, Ill., describes and illustrates its variable speed transmission. The principal features of the device are described and a phantom view illustrates its construction and operation. A speed and power schedule is included.

NICKEL STEEL—International Nickel Co., New York, has issued the first of a series of bulletins as a panorama of progress in the use and applications of nickel steels in various industries. It is illustrated by halftones of various nickel steel parts for automotive, railroad, aeronautical, petroleum, mining, power and miscellaneous fields.

Iron and Steel Freight Rates

Finished Material

Per 100 Pounds

PITTSBURGH TO:

Atlanta	$0.58
Baltimore	0.31
Birmingham	0.58
Boston	0.365
Buffalo	0.265
Chattanooga	0.50
Chicago	0.34
Cincinnati	0.295
Cleveland	0.19
Columbus	0.255
Dallas (tin plate .90)	1.02
Denver	1.15
Detroit	0.295
Duluth	0.60
Indianapolis	0.31
Kansas City	0.735
Louisville	0.33
Milwaukee	0.37
Minneapolis and St. Paul	0.60
New Orleans	0.67
New York	0.34
Omaha	0.735
Pacific coast (tin plate)	0.90
Pacific coast (all rail)	1.15
Philadelphia	0.32
South Bend, Ind.	0.32
St. Louis	0.43
Toledo	0.27
Topeka	0.85
Youngstown	0.11

CHICAGO, GARY, INDIANA HARBOR, EVANSTON, JOLIET AND WAUKEGAN TO:

Aberdeen, S. D.	$0.55
Ashland, Wis., and Duluth	0.305
Atlanta	0.58
Beaumont, Tex. (pipe, .49)	0.68
Birmingham	0.53
Cairo, Ill.	0.26
Caspar, Wyo. (pipe .835)	0.95
Cedar Rapids, Iowa, (wire .345)	0.245
Chattanooga, Tenn.	0.49
Dallas, Tex. (pipe .69) (rail and river .75)	0.84
Denver	0.83
Des Moines, Iowa	0.295
Detroit	0.275
Grand Rapids, Mich.	0.255
Green Bay, Manitowoc, Wis.	0.205
Indianapolis (pipe .25)	0.18
Kalamazoo, Mich.	0.22
Kansas City (pipe .35)	0.42
Madison, Wis.	0.14
Memphis, Tenn. (all rail)	0.38
Memphis, Tenn. (rail and river)	0.315
Milwaukee	0.095
Minneapolis-St. Paul	0.2275
Muskogee, Okla. (pipe .60)	0.69
New Orleans (all rail)	0.55
New Orleans (rail and river)	0.455
Omaha, Nebr. (pipe .35)	0.42
Pacific Coast (tin plate .75)	1.00
Rock Island, Ill.	0.17
St. Joseph, Mo. (pipe .35)	0.42
South Bend, Ind. (sheets .13)	0.125
St. Louis	0.22
Tulsa, Okla. (pipe .60)	0.69

CLEVELAND TO:

Akron, O.	$0.09
Atlanta	0.57
Baltimore	0.37
Boston	0.43
Buffalo	0.25
Canton	0.095
Chattanooga	0.50
Chicago	0.30
Cincinnati	0.27
Columbus	0.215
Detroit (rail)	0.235
Indianapolis	0.28
New Orleans	0.65
New York	0.40
Philadelphia	0.38
St. Louis	0.36
Toledo	0.20

YOUNGSTOWN TO:

Akron, O.	$0.095
Baltimore	0.345
Beaumont, Tex. (pipe .67)	0.87
Boston	0.405
Buffalo	0.25
Canton	0.095
Caspar, Wyo.	1.15
Chattanooga	0.50
Chicago	0.32
Cincinnati	0.285
Cleveland	0.095
Columbus	0.25
Dallas (pipe .855)	1.02
Denver (pipe 1.115 Min. 60,000 lbs.)	1.13
Detroit	0.265
Indianapolis	0.30
Little Rock, Ark. (pipe .75)	0.70
Memphis	0.54
New Orleans	0.66
New York	0.375
Pacific coast	1.15
Philadelphia	0.355
Shreveport, La. (pipe .84)	0.79
Smackover, Ark. (pipe .82)	0.77
St. Louis	0.38
Toledo	0.24
Tulsa, Okla. (pipe .855)	0.87

LORAIN TO:

Atlanta	$0.57
Bakersfield, Long Beach and Los Angeles	1.15
Beaumont, Tex.	0.655
Caspar, Wyo.	1.125
Chattanooga	0.50
Chicago	0.36
Cincinnati	0.265
Cleveland	0.07
Coffeyville, Kans.	0.70
Dallas	0.84
Detroit	0.215
New Orleans	0.65
*Shreveport, La.	0.76
Smackover, Ark.	0.77
St. Louis	0.355
Tulsa, Okla.	0.84
Wichita	0.84

*Minimum 80,000 pounds.

TO \ FROM	SPARROWS POINT	BETHLEHEM	COATESVILLE	PITTSBURGH	BUFFALO
Massachusetts Points	25.5	25.5	25.5	36.5	33.0
Connecticut Points	25.5	25.5	25.5	36.5	33.0
Albany, N. Y.	22.5	22.5	22.5	34.0	21.5
Troy, N. Y.	22.5	22.5	22.5	34.0	21.5
Schenectady, N. Y.	22.5	22.5	22.5	34.0	21.5
Syracuse, N. Y.	22.5	22.5	22.5	28.5	17.5
Rochester, N. Y.	22.5	22.5	22.5	26.5	11.5
Buffalo	32.0	32.0	32.0	26.5	.....
Erie, Pa.	30.5	31.0	31.0	22.0	13.5
New York City	19.0	14.5	17.5	34.0	32.0
Brooklyn, N. Y.	19.0	14.5	17.5	34.0	32.0
Newark, N. J.	19.0	14.5	17.5	34.0	32.0
Plainfield, N. J.	19.0	14.5	17.5	34.0	32.0
Bethlehem, Pa.	19.0	.....	17.5	32.0	32.0
Allentown, Pa.	19.0	3.0	17.5	32.0	32.0
Reading, Pa.	15.5	13.0	10.0	32.0	32.0
Lancaster, Pa.	14.5	17.5	9.0	32.0	32.0
Wilkes-Barre, Pa.	19.0	13.0	19.0	32.0	28.0
Pottstown, Pa.	15.5	14.5	10.0	32.0	32.0
Berwick, Pa.	19.0	19.0	19.0	32.0	28.0
Milton, Pa.	19.0	19.0	19.0	31.0	28.0
Ambler, Pa.	19.0	13.0	15.5	32.0	32.0
York, Pa.	14.5	19.0	12.5	31.0	32.0
Scranton, Pa.	19.0	13.0	19.0	32.0	28.0
Philadelphia	14.5	13.0	10.0	32.0	32.0
Baltimore	6.0	19.0	14.5	31.0	32.0
Hagerstown, Md.	19.0	22.5	22.5	31.0	32.0
Richmond, Va.	21.5	28.5	24.0	38.0	38.0
Newport News, Va.	21.5	28.5	24.0	38.0	38.0
Charlotte, N. C.	40.5	44.0	43.0	51.0	53.0

Pig Iron

In gross tons

BIRMINGHAM, ALA., TO:

Boston (rail and water)	$6.91
Chicago	6.01
Chicago (rail and water)	4.18
Cincinnati	6.01
Jersey City, N. J.	8.05
Louisville, Ky.	3.39
New York	9.24
Philadelphia (rail and water)	6.01
St. Louis	4.42

EVERETT, MASS., TO:

Claremont, N. H.	$2.52
Hartford, Conn. (plus $5 per car for switching to New Haven tracks)	2.90
New Haven, Conn.	3.30
Pittsfield, Mass.	2.65
Portland, Me.	2.39
Providence, R. I.	2.10
Rutland, Vt.	2.65
Springfield, Mass	2.27
Worcester, Mass.	1.89

PORT HENRY, N. Y. TO:

Boston (New Haven R. R. $3.65)	$3.15
Claremont, N. H.	3.65
Hartford, Conn.	3.65
New Haven, Conn.	3.28
Pittsfield, Mass. (New Haven R. R. $3.65)	3.00
Portland, Me.	3.65
Rutland, Vt.	1.39
Providence, R. I.	3.65
Springfield, Mass. (New Haven R. R. $3.65)	3.00
Worcester, Mass.	3.15

CHICAGO TO:

Des Moines, Iowa	$3.75
Milwaukee	1.00
Minneapolis, St. Paul	3.04
Moline, Ill.	1.76
Omaha, Nebr.	4.97
St. Louis	2.16

CLEVELAND TO:

Cincinnati	$2.90
Columbus, O.	2.10
Dayton, O	2.52
Springfield, O.	2.39
Canton, O.	1.26
Akron, O.	1.26
Youngstown, O.	1.76
Crestline, O.	1.76
Lima, O.	2.39
Mansfield, O.	1.76
Detroit	2.75
Indianapolis	3.30

TOLEDO, O. TO:

Cincinnati	$2.65
Columbus, O.	2.10
Dayton, O.	2.27
Springfield, O.	2.07
Canton, O.	1.77
Akron, O.	2.25
Youngstown, O.	2.65
Lima, O.	1.68
Mansfield, O.	1.76
Detroit	1.00
Indianapolis	2.96
Battle Creek, Mich.	2.40
Flint, Mich.	2.10
Jackson, Mich.	1.90
Grand Rapids, Mich.	2.90
Kalamazoo, Mich.	2.65
Lansing, Mich.	2.10

DETROIT TO:

Indianapolis	$3.15
Toledo, O.	1.00
Springfield, O.	2.61
Dayton, O.	2.90
Jackson, Mich.	1.90
Battle Creek, Mich.	2.40
Flint, Mich.	1.85
Grand Rapids, Mich.	2.90
Kalamazoo, Mich.	2.65
Lansing, Mich.	1.95

BUFFALO TO:

Albany, N. Y.	$2.27
New England (rail)	4.91
New York (rail)	4.91
Philadelphia	4.91
Rochester, N. Y.	1.39

TROY, N. Y. TO:

Boston	$2.90
Worcester, Mass.	2.65
Springfield, Mass.	2.39
Providence, R. I.	3.66
Hartford, Conn.	3.66
New Haven, Conn.	4.10
Claremont, N. H.	2.65
Portland, Me.	3.15

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. Extra 5 per cent granted in the 4th quarter 1927 and 1st quarter 1928 discontinued April 2, 1928.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 3-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh carload discounts. Less carloads 4 points less

STEEL (Lap Weld)

2 and 2¼-inch	27 off
2½ and 2¾-inch	37 off
3-inch	40 off
3¼ to 3¾-inch	42½ off
4 to 13-inch	46 off

(Note—Additional discounts of seven extra 5 per cents now being given on 21,000 pounds or more.)

CHARCOAL IRON

1½-inch	+18
1¾-inch	+ 8
2 and 2¼-inch	2 off
2½ to 3-inch	7 off
3¼ to 4½-inch	9 off

(Note—Additional discounts of two 10's and one 2½ now being given on 12,000 pounds or more.)

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	45 off

SEAMLESS HOT ROLLED

2 and 2½-inch	40 off
2½ and 2¾-inch	48 off
3-inch	52 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Net prices per foot f.o.b. Pittsburgh Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.	

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot	.20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot	.20c
Plates ordered 7.65 pounds per square foot	.30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. specifications, classes A and B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates	1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection.....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra	.10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra	.20c

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum Can be equipped with power operated loading hopper.

LOGEMANN SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price*, and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.

LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.

European Iron and Steel Statistics

Gross Tons

Pig Iron Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912.....	729,000	405,000	192,000	184,800	1,279,200
1913.....	855,000	427,200	203,800	209,000	1,374,400
1921.....	218,000	280,300	71,800	79,600	643,200
1922.....	408,500	428,900	132,300	138,200	770,500
1923.....	620,000	445,600	179,100	115,400	404,700
1924.....	609,000	631,100	230,300	177,000	640,500
1925.....	521,800	696,800	208,500	192,300	834,500
1926.....	203,500	770,500	278,800	206,100	791,000
		1927			
January.....	434,600	792,400	311,500	224,100	1,044,600
February.....	571,100	705,100	288,000	204,500	953,600
March.....	671,800	788,500	309,400	226,200	1,068,900
April.....	680,000	761,800	305,100	221,000	1,035,400
May.....	720,100	781,800	314,000	233,900	1,112,100
June.....	651,300	735,000	297,300	220,300	1,050,900
July.....	645,800	757,100	314,700	221,700	1,091,600
August.....	596,100	761,400	311,700	234,500	1,098,100
September....	591,500	749,500	304,000	225,500	1,087,400
October.....	596,300	782,600	317,200	226,600	1,121,600
November....	575,900	750,100	308,200	217,800	1,101,900
December....	559,100	783,600	311,900	224,600	1,131,700
		1928			
January.....	560,500	796,400	309,700	226,000	1,162,100
February.....	550,800	772,100	297,300	216,700	1,104,800
March.....	592,600	845,000	321,400	236,500	1,152,200
April.....	563,100	821,100	313,220	223,400	1,029,100
May.....	591,500	857,400	323,700	230,200	1,027,700
June.....	563,700	830,800	.....	226,900	1,005,400

Ingots and Castings Production

Monthly Average	United Kingdom	France	Belgium	Luxemburg	Germany*
1912.....	566,000	363,000	206,000	79,400	1,339,600
1913.....	638,600	384,500	202,300	109,000	1,445,700
1921.....	308,600	254,500	62,800	61,900	819,700
1922.....	490,100	372,000	128,400	114,300	960,500
1923.....	706,800	419,100	186,200	98,300	517,000
1924.....	685,100	566,000	234,700	154,300	806,500
1925.....	615,500	608,300	197,700	170,800	1,000,000
1926.....	296,700	687,900	276,800	184,100	1,012,500
		1927			
January.....	730,700	662,900	315,700	192,300	1,288,500
February.....	826,800	618,200	292,200	181,300	1,214,300
March.....	949,600	692,900	309,700	199,800	1,393,600
April.....	850,100	669,900	296,400	202,800	1,269,100
May.....	884,600	700,800	316,100	206,900	1,356,200
June.....	747,300	661,400	295,100	200,000	1,307,200
July.....	687,100	666,300	309,200	199,800	1,341,100
August.....	643,100	683,200	320,600	212,500	1,409,700
September....	777,000	682,400	285,400	209,600	1,353,600
October.....	699,000	711,600	307,200	211,800	1,392,300
November....	698,700	671,300	305,200	204,200	1,380,000
December....	604,900	723,500	305,900	210,500	1,351,100
		1928			
January.....	626,200	738,300	310,700	209,600	1,446,500
February.....	764,400	726,500	305,600	201,800	1,301,300
March.....	793,300	791,400	321,600	216,900	1,398,200
April.....	644,100	726,500	300,300	199,400	1,143,300
May.....	752,700	781,600	320,100	211,400	1,228,300
June.....	709,000	784,600	.....	211,600	1,274,300

*German pre-war boundaries for 1912 and 1913; from 1919 the figures do not include the Saar district returns.

Imports

	United Kingdom	Belgium and† France	Luxemburg	Germany*
Average monthly 1912	166,400	16,400	87,000	27,300
Average monthly 1913	185,900	14,100	72,900	25,000
Average monthly 1921	136,700	41,300	43,300	54,000
Average monthly 1922	73,500	63,300	47,700	152,300
Average monthly 1923	110,200	58,500	43,700	145,000
Average monthly 1924	202,400	57,100	46,800	160,000
Average monthly 1925	226,700	14,100	44,500	98,400
Average monthly 1926	311,700	14,200	50,200	86,500
	1927			
January.....	555,500	7,900	45,800	129,500
February.....	443,400	10,100	36,800	143,400
March.....	478,100	10,500	54,000	129,800
April.....	404,700	12,000	47,300	200,000
May.....	355,900	15,100	47,500	186,400
June.....	332,600	14,100	56,300	186,300
July.....	336,300	12,000	52,700	189,000
August.....	286,300	9,900	63,400	211,300
September.....	312,000	6,900	50,000	210,900
October.....	336,000	8,100	68,000	232,800
November.....	284,800	8,200	57,800	223,900
December.....	280,500	11,400	59,800	190,100
	1928			
January.....	283,900	6,000	65,000	200,800
February.....	286,900	10,100	72,000	179,600
March.....	271,500	16,800	70,200	187,700
April.....	252,700	10,000	61,700	189,100
May.....	236,900	.....	63,800	164,800
June.....	210,400	.....	.....	.....

*Luxemburg is included with Germany in 1912 and 1913.

Exports

	United Kingdom	Belgium and† France	Luxemburg	Germany*
Average monthly 1912	400,600	41,500	124,500	482,400
Average monthly 1913	414,100	51,600	129,200	517,300
Average monthly 1921	141,400	133,800	75,600	160,000
Average monthly 1922	283,400	161,400	175,900	209,700
Average monthly 1923	360,000	181,900	207,900	110,000
Average monthly 1924	321,100	231,100	282,200	130,000
Average monthly 1925	310,900	321,700	262,800	267,600
Average monthly 1926	249,000	343,800	308,900	402,000
	1927			
January.....	219,400	463,300	345,900	478,400
February.....	251,700	480,600	364,500	352,900
March.....	353,000	472,700	415,000	374,100
April.....	334,500	519,100	383,800	344,300
May.....	422,400	461,900	364,800	344,300
June.....	366,100	432,900	351,300	307,600
July.....	389,600	454,600	375,700	340,600
August.....	342,400	465,800	426,700	333,200
September.....	384,900	453,600	357,100	346,800
October.....	384,800	508,400	372,900	340,700
November.....	399,100	449,300	392,900	326,800
December.....	381,800	440,300	456,300	340,600
	1928			
January.....	332,200	408,100	274,600	363,026
February.....	317,000	462,700	395,500	390,776
March.....	409,300	443,500	453,100	334,798
April.....	344,300	398,800	323,600	412,810
May.....	359,000	.....	332,700	378,500
June.....	365,900	.....	.....	.....

†Luxemburg included with Belgium from 1922 onward.

American Iron and Steel Exports, Imports

Gross Tons

	Imports	Exports
1928		
January.....	58,635	205,766
February.....	47,628	185,915
March.....	74,128	221,935
April.....	72,329	215,184
May.....	72,106	267,890
June.....	65,819	262,052
July.....	47,830	253,336
1927		
January.....	63,404	215,235
February.....	49,451	166,128
March.....	61,872	171,094
April.....	60,374	192,339
May.....	79,814	202,708
June.....	69,017	184,364
July.....	61,112	190,502
August.....	68,386	175,636
September.....	58,464	166,352
October.....	52,503	170,255
November.....	61,882	177,928
December.....	64,188	168,428
Total.....	750,467	2,180,969
1926		
January.....	79,067	174,585
February.....	100,213	157,187
March.....	93,107	169,438
April.....	107,636	194,449
May.....	108,731	173,418
June.....	124,215	159,506
July.....	82,411	194,717
August.....	91,578	171,588
September.....	85,484	182,071
October.....	81,830	172,070
November.....	81,259	219,830
December.....	75,559	198,189
Total.....	1,111,090	2,167,048
1925		
January.....	77,065	141,714
February.....	92,380	102,302
March.....	92,110	155,386
April.....	71,249	155,426
May.....	68,117	150,612
June.....	83,330	136,847
July.....	64,642	138,670
August.....	68,489	188,963
September.....	68,445	136,754
October.....	80,163	141,817
November.....	79,771	171,134
December.....	98,400	142,209
Total.....	943,240	1,762,571

Yearly Totals

1924.....	556,281	1,805,064
1923.....	734,734	2,009,141
1922.....	712,895	2,005,100
1921.....	135,825	2,150,276
1920.....	421,274	4,934,087
1919.....	322,264	4,397,295
1918.....	169,110	5,338,019
1917.....	330,301	6,465,053
1916.....	328,965	6,110,732
1915.....	282,396	3,532,564
1914.....	289,775	1,549,554
1913.....	317,260	2,745,635
1912.....	225,072	2,947,596
1911.....	262,457	2,187,725
1910.....	510,730	1,537,943
1909.....	363,984	1,243,583
1908.....	205,845	964,242
1907.....	662,358	1,301,981
1906.....	577,809	1,325,740
1905.....	416,000	1,011,255
1904.....	266,398	1,167,674
1903.....	1,178,797	326,590
1902.....	1,212,484	1,103,664
1901.....	221,297	700,852
1900.....	209,955	1,154,284